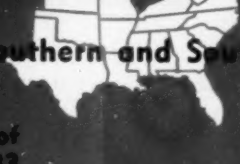
ELECTRICAL SOUTH

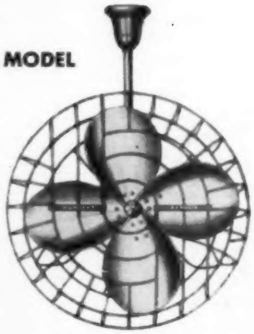


Serving the 18 Southern and Southwestern States

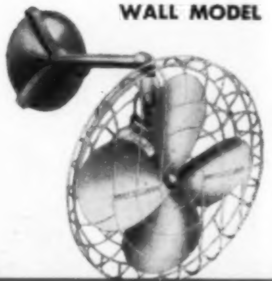
Electrical South's Annual Review of New Electrical Products — Page 33

MAY, 1955

CEILING MODEL



WALL MODEL

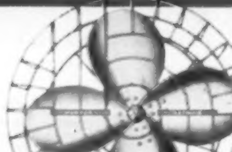


Powerful Circulating Fan

Hunter AIRSPREAD

FOR COMMERCIAL AND INDUSTRIAL USE

Guaranteed 5 Years



BENCH MODEL

PEDESTAL MODEL

Chrome-plated, seamless steel column adjustable in height from 5 to 8 feet

24" moves 5250 CFM—30" moves 7000 CFM
(Standard NEMA test)

- Two speeds
- Tilts up or down and locks
- Sound-tested ball bearings
- Polished aluminum blades
- Capacitor-type totally enclosed motor
- Sturdy, bright finish Udylite guard
- Underwriters' Laboratories approved
- Super Safety Guard available for 24" models

Hunter
SINCE 1886

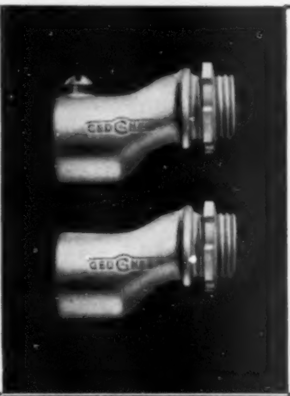
Order from your distributor now . . . or write
HUNTER FAN AND VENTILATING CO.
392 S. Front St., Memphis 2, Tenn.

FOR ROCK-BOTTOM INSTALLATION COSTS

SPECIFY GEDNEY!

GEDNEY FITTINGS are machined and threaded with utmost accuracy... smooth-finished, with no metal particles or burrs... made of malleable iron to eliminate breakage... individually inspected to ensure absolutely top quality. That's why they're quickest, least costly to install... Specify Gedney Fittings and you'll find, like thousands of others, that this is the most profitable line available today!

Gedney 90° Pull-In Ells and Adapters with Neoprene gasketed cover and self-retaining screws. These fittings may be used to convert a straight box connector into a 90° connector, or as a 90° box connector for rigid standard pipe coupling. Ells have female threads at both ends. Adapters have male threads at one end and female at the other. Made of malleable iron and cadmium plated. Sizes ½" to 2".



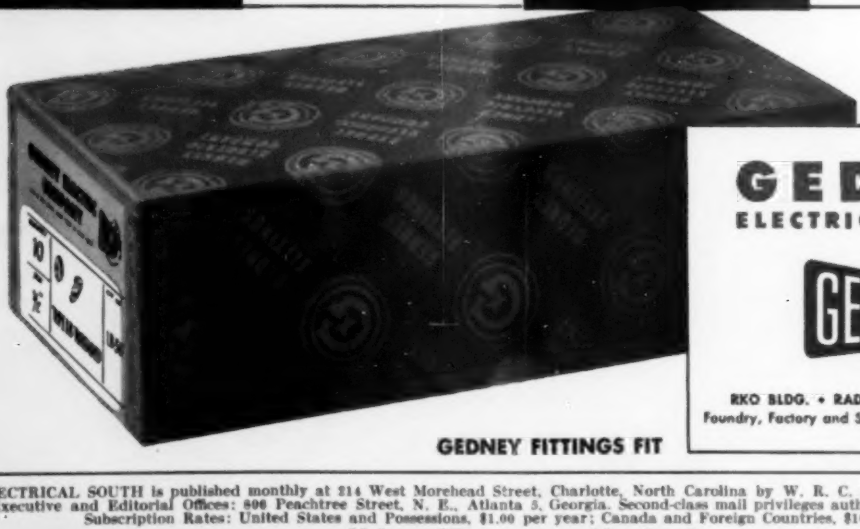
Gedney Offset Connectors—eliminate the necessity for offsetting conduit at knockout entrances of standard boxes. Threaded for rigid, set screw for EMT. Made of malleable iron, cadmium plated, in sizes from ½" to 2".

Gedney Corner Pull-In Elbows are outstanding for space saving, machine wiring, easy wire pulling. Malleable iron, cadmium plated. Made in ½", ¾", 1", 1¼", 1½" and 2" sizes.

Gedney Offset Coupling—female both ends—for use as an offset between boxes. Can also be used with conduit nipple (Gedney 7-50 series) to give more room in box than otherwise possible.

Gedney Offset Nipple, male both ends.

Both of these fittings are made of malleable iron, cadmium plated. Available in sizes from ½" to 2".



GEDNEY FITTINGS FIT

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ELECTRIC COMPANY

GEDNEY

RKO BLDG. • RADIO CITY • NEW YORK 20
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Volume 35 Number 5

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Southwire means service

Fast, dependable Southwire trucks speed the wide variety of Southwire products all over the country—from El Paso to Scranton, from Duluth to Key West—wherever aluminum or copper transmission or distribution conductor is needed.

Many of Southwire's trucks are on regularly scheduled runs, reaching every nook and cranny in an ever-increasing area. This means that shipments reach their destination *on time* and in less time than normally expected.

Add the flexibility of Southwire's manufacturing schedules to speedy shipping and you have service with a capital S. You also have the reasons why more and more engineers and purchasing agents are specifying Southwire, and why it will pay you to do likewise.

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MADE IN OUR OWN MODERN PLANT

- **Bare and Weatherproof Copper and Aluminum Wire**
- **Neoprene Copper, Aluminum and Triplex**
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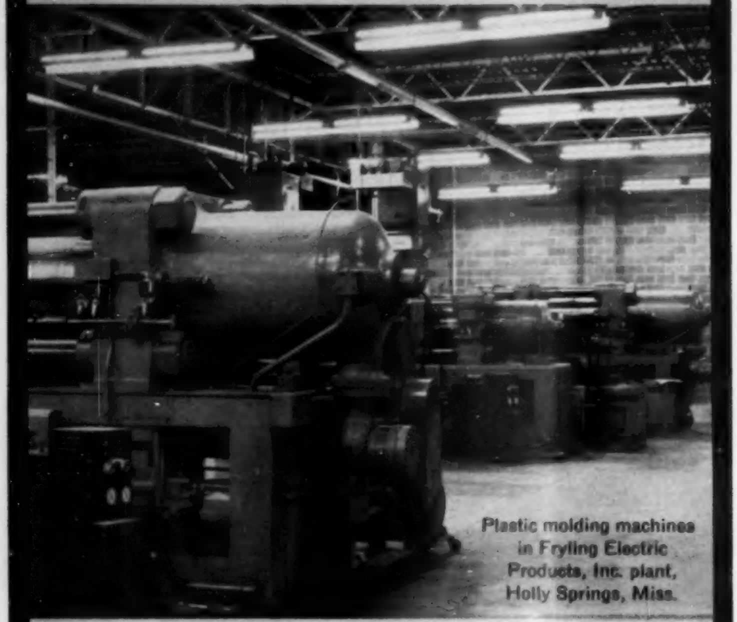
In Mississippi, Too...
The Choice Was L & P Fixtures!



Plastic molding machines in Fryling Electric Products, Inc. plant, Holly Springs, Miss.

These specially made fluorescent fixtures in the Fryling Electric Products, Inc. plant (Holly Springs, Miss.) prove once again the advantages of L & P fixtures--because they're designed, engineered and manufactured, every step of the way, right in our own plant.

That's why, in Mississippi, too -- for extra efficiency at no extra cost -- the choice was L & P!

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Light & Power Utilities Corp.
1035 Firestone Blvd.
Memphis, Tennessee

Fryling Electric Products, Inc. plant, Holly Springs, Miss.

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L&P
Representative
Near YOU!

For further information and prices on L & P fluorescent fixtures—standard or "custom-made"—check the following list, and phone or write the L & P representative nearest you:

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Craig-Owen
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Chattanooga, Tenn.

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John C. Fox
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3737 East Main St.
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ELECTRICAL SOUTH

SERVING THE 18 SOUTHERN AND SOUTHWESTERN STATES

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CARL W. EVANS, *Editor*
VIRGIL S. PRICE, *Associate Editor*
FRANCES B. KELLY, *Assistant Editor*
BARON CREAGER, *Southwestern Editor*
(1305 National City Bldg., Dallas, Tex.)
T. W. McALLISTER, *Vice-Pres., Editorial Director*
FRANK P. BELL, *Business Manager*
J. J. FELTON, JR., *Advertising Manager*
J. A. MOODY, *Production Manager*

Editorial and Business Offices
Tel. Atwood 4462
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Business Representatives

New York:
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Cleveland:
W. G. SHEEHAN, 17021 Amber Dr., Cleveland 11, Ohio, Tel. Winton 1-1306

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Electrical South's Annual Review of New Products

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ELECTRICAL SOUTH's **Annual Review of New Products** is intended to be a helpful aid to all those associated with the industry — electrical contractors, maintenance engineers, electrical inspectors, utility personnel, and distributors. In this period of rapid changes and development, new materials, new products, or new tools and testing equipment may frequently result in valuable increases in efficiency or important savings in operating expenses. The new products and materials in this special issue have been described with a view of telling the reader what the item will do or how it can be used advantageously. Space limitations prevent giving all details, but complete information may be obtained on any items by using the handy postage-paid card on page 33.

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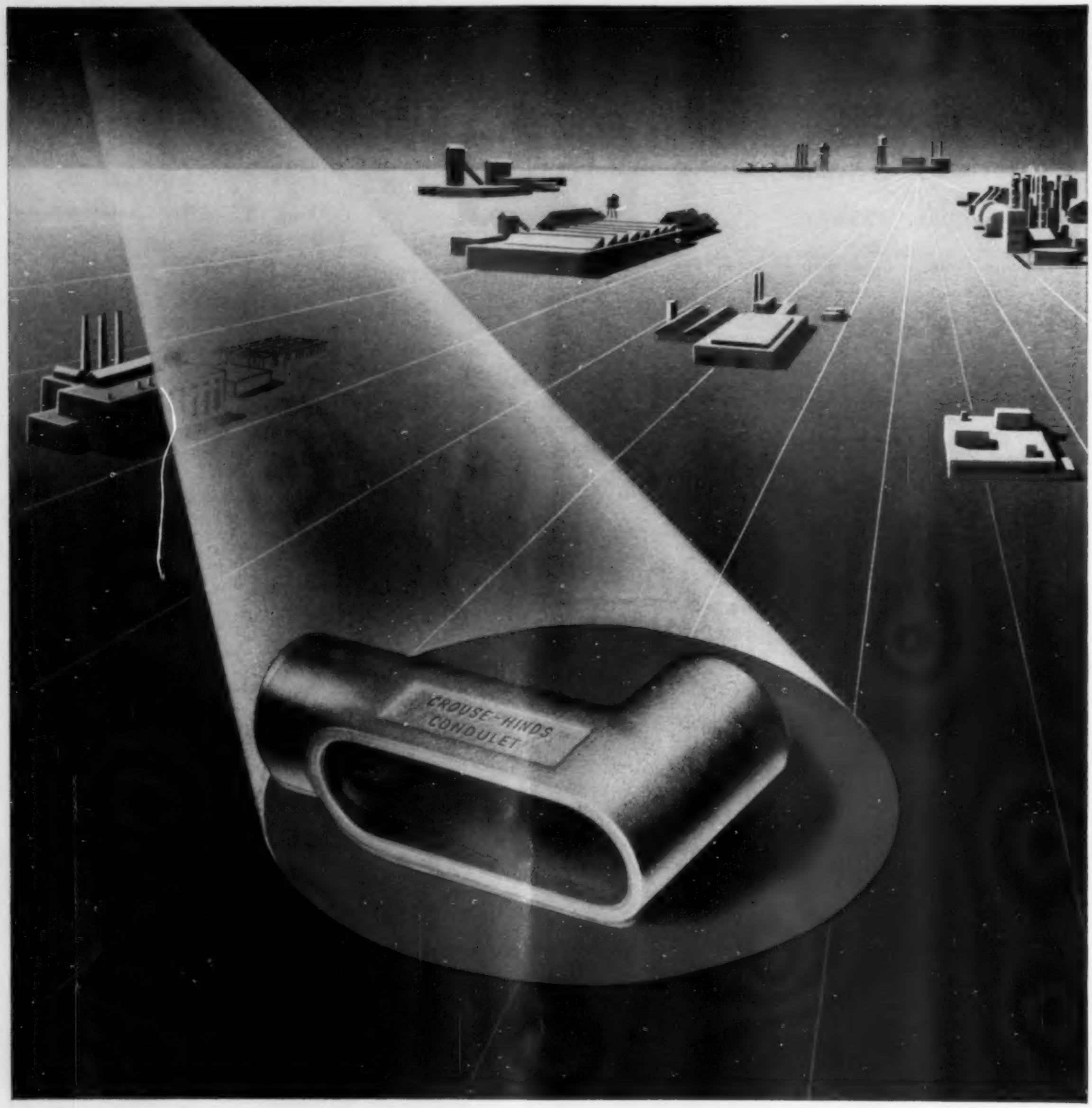


Still the standard of quality in rigid conduit fittings

Condulets* have been widely imitated since Crouse-Hinds introduced them more than 40 years ago . . . *and that's all to the good!*

Imitation by others has kept us on our toes . . . made us constantly improve our product to stay *ahead* of competition.

As a result, most conduit fittings today incorporate many basic features pioneered by Crouse-Hinds—but lack certain refinements that put Condulets in a class by themselves, head and shoulders above the rest.

What other fittings, for example, include these improvements:

. . . an ingenious *Cover* design that eliminates protruding screws or ears in the housing—common causes of cable damage.

. . . a longer *Hub* that permits full tightening of conduit and fitting without causing conduit to bottom on the integral bushing.

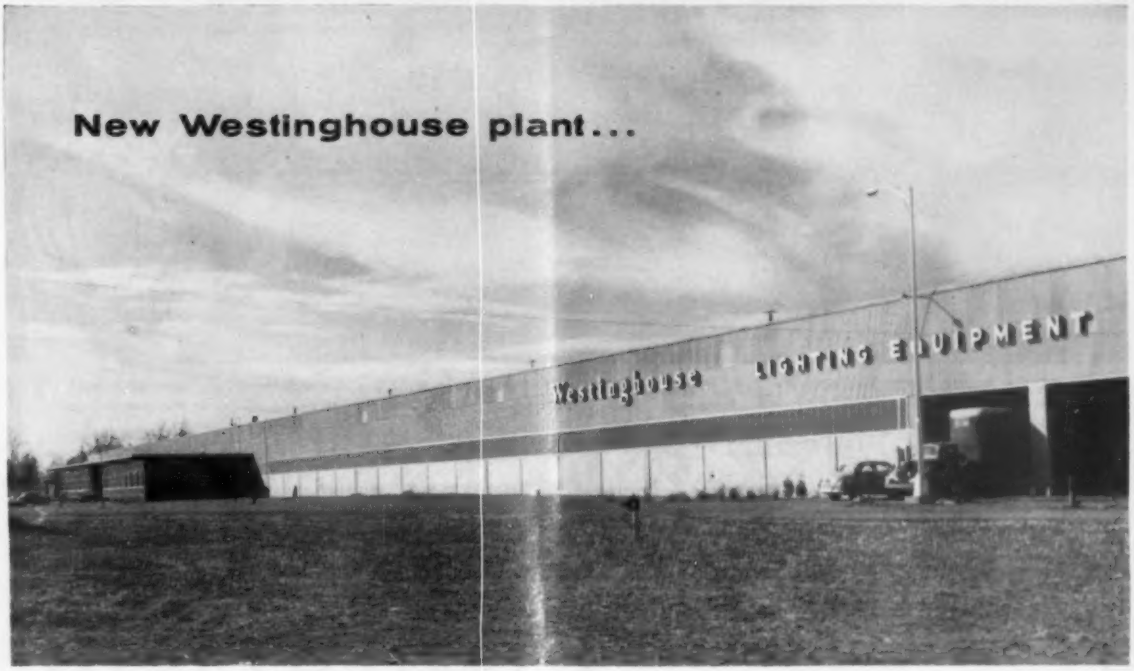
. . . a corrosion-resistant Feraloy *Body* plus a triple-layer *Finish* that exceeds Federal and UL specs. for lasting protection.

These years-ahead Condulet features have yet to be equalled. You get them in all 45 types of Obround Condulets ranging in size from ½" to 6". See your Crouse-Hinds distributor. Crouse-Hinds Company, Syracuse 1, New York.

*Registered

CROUSE-HINDS COMPANY

CONDULETS FLOODLIGHTS TRAFFIC SIGNALS AIRPORT LIGHTING



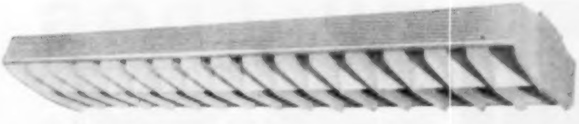
New Westinghouse plant...

produces over one mile of modern fluorescent fixtures—daily

Every day, in this modern multimillion-dollar plant in Vicksburg, Mississippi, Westinghouse produces *over one mile* of fluorescent luminaires for the expanding lighting market. Westinghouse engineers design units incorporating all the elements of easy installation and maintenance simplicity—so important to the electrical contractor. Thanks to high-quality standards these luminaires will perform effectively for years.

For example, Elm Hill school officials selected Westinghouse LC luminaires for their architectural distinctiveness, graceful beauty and comfortable glareless illumination. More facts? See The Man With The Facts, your local Westinghouse distributor. For informative literature about the new Westinghouse LC luminaire fill in this coupon. J-04369

YOU CAN BE SURE...IF IT'S Westinghouse



Westinghouse Electric Corporation
Lighting Division
Vicksburg, Mississippi, Section X-1

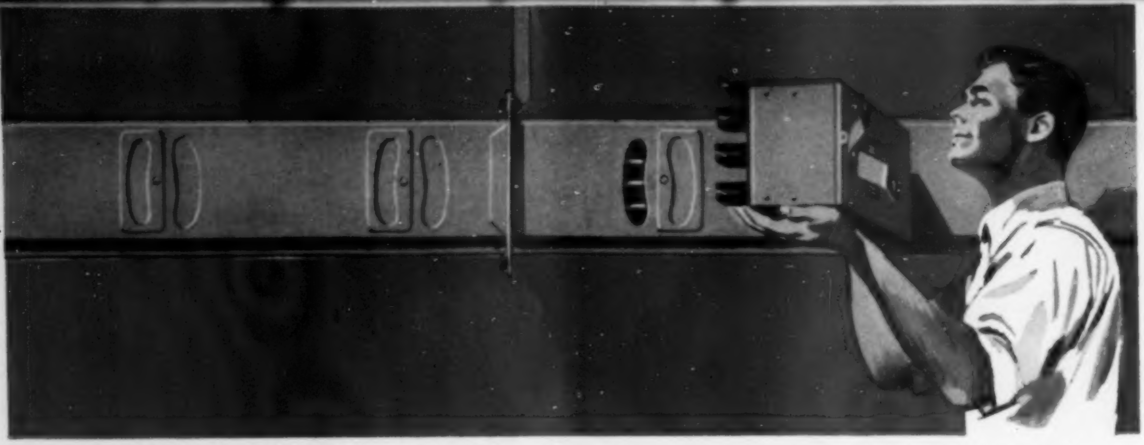
Please send me a free copy of the bulletin describing your new Westinghouse LC luminaire.

Name______________________________

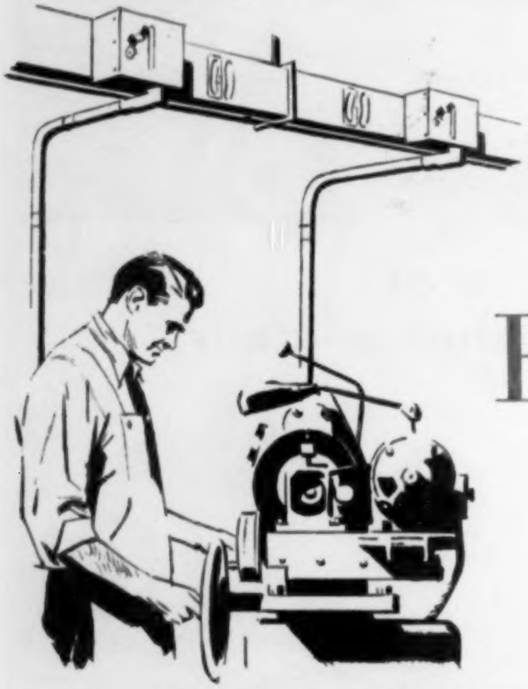
Company______________________________

Address______________________________

City_______________ State_______________



PLUG-IN POWER WHERE YOU NEED IT . . . IN MINUTES! Each section of plug-in duct is 10 feet long with five plug-in openings on each side. Exclusive scarf-lap construction joins sections in a rigid form. Standardized plugs are fastened to casing flanges at plug-in openings. Reinforced fingers engage bus bars for positive pressure contact.



BULLDOG PLUG-IN DUCT WITH ALUMINUM CONDUCTORS GIVES

Lightweight, Flexible Power

at low cost!

CUTS DOWNTIME! 100% REUSABLE! SAFER, MORE EFFICIENT POWER!

Sell customers on providing for *future* as well as present electrical requirements. Recommend and install BullDog Plug-in Duct—the completely flexible, reusable electrical distribution system that provides instant plug-in power wherever, and whenever, it's needed.

Simple to install, rugged plug-in duct allows circuits to be swiftly added or removed without rewiring. Downtime is cut, too! New tool setups can be made, machines shifted, lighting revamped, without interrupting the flow of power.

Whatever the power requirement, present or future, your customers are always prepared with BullDog Plug-in Duct. Your nearby BullDog Field Engineer will provide experienced assistance. Or write: BullDog Electric Products Company, Detroit 32, Michigan. ©BEPCO

IF IT'S NEW
. . . IF IT'S DIFFERENT
. . . IF IT'S BETTER . . . IT'S

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A Division of I-T-E Circuit Breaker Company

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A STATEMENT OF POLICY

on our backing-up of

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with a coast-to-coast network of stocks in bulk supply

To take giant steps, to set the pace . . . this is the responsibility of leadership. It sums up the history and current business philosophy of the General Cable Corporation. For example:

It is our policy, through a nationwide network of distributing centers, to place at the disposal of our family of Authorized Distributors additional, close-at-hand supplies of the fastest moving items they sell in our line . . . the largest offered by any electrical wire and cable manufacturer in the industry.

It is our policy to offer this "supporting" service to Authorized Distributors only.

It is our belief that this expanding service will enable our Authorized Distributors to better serve their customers with faster deliveries . . . easier and more efficient handling of seasonal needs . . . and to help them give their customers the exact type of electrical wire and cable they need when they need it.

We invite every member of our family of Authorized Distributors to use our service to back up his own sales programs. Ask any General Cable Representative for complete details.

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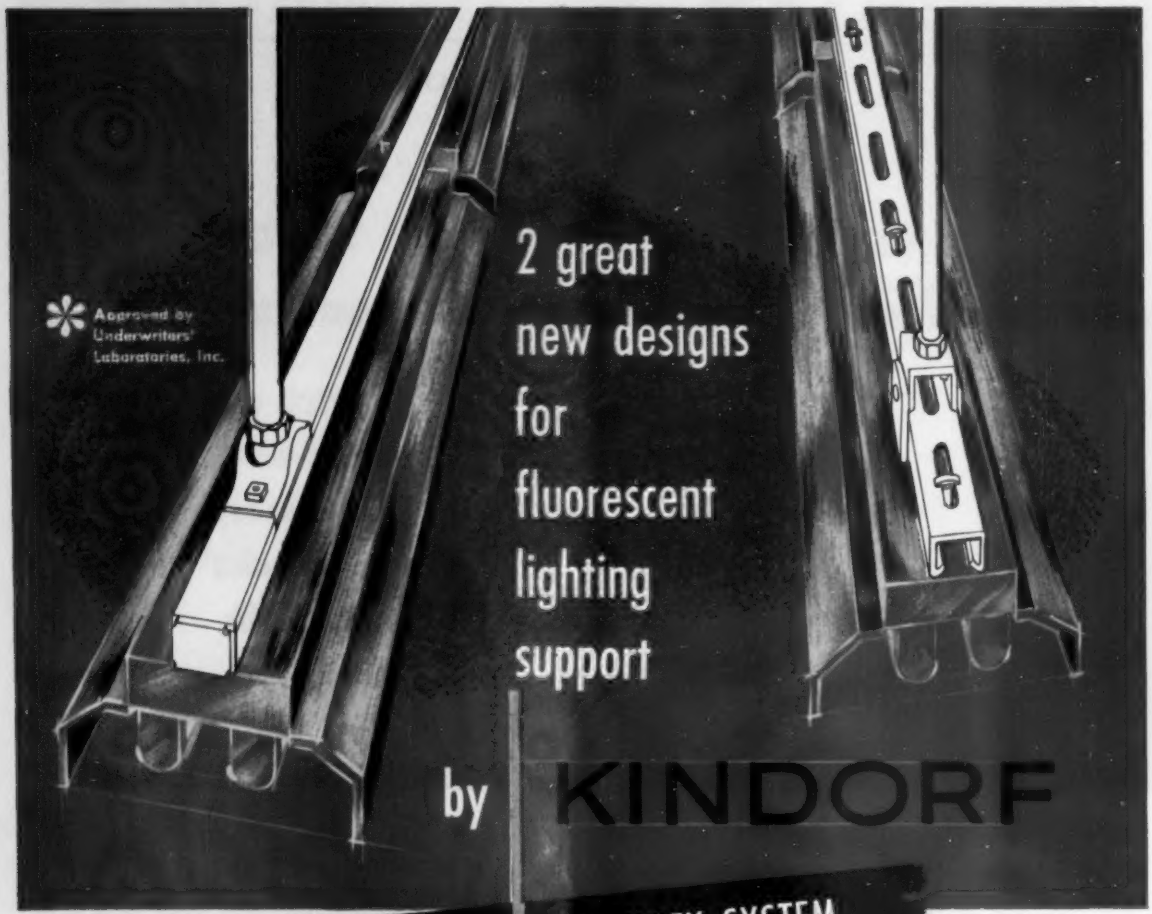

Approved by Underwriters' Laboratories, Inc.
2 great new designs for fluorescent lighting support
by KINDORF

* SURFACE RACEWAY SYSTEM

Specially designed for use as a combination surface raceway and flush-mounting fluorescent fixture support. Completely enclosed from outlet box to fixture to eliminate the clutter of external conductors, this system also protects the wiring from physical damage. It's simple "slot-up" design makes it easy to install . . . easy to wire.

SIMPLEX SYSTEM

A fluorescent fixture *support* system only, its channel is applied slot-side down, and is not intended for use as a raceway. This system combines economy of investment with maximum strength and rigidity. It is easy to install and fixtures may be attached, or relocated, without lowering, or otherwise disturbing the basic channel assembly.

Write for our product bulletin g-1. "Fluorescent Lighting Supports by Kindorf."

Fluorescent lighting supports
by KINDORF

**designed by electrical engineers
made by a leading electrical manufacturer
for the electrical trade.**

a product of

**STEEL CITY
ELECTRIC COMPANY**
PITTSBURGH 33, PA.

ALLIS-CHALMERS
NETWORK
TRANSFORMERS

in City after City...

PROVED

By Performance

- **Compact, low-loss design.** Thermal capacities are high for severe load conditions. Sturdy, time-proven core and coil construction withstands repeated short-circuit stresses of network operation.
- **Safe, dependable tap-changing mechanism.** Handle inserted through two-inch opening on cover operates mechanism. Handle cannot be removed unless it is in positive tap position. Cover location of handle entrance eliminates packing gland maintenance.
- **Threaded valve connections** to tank are solder-wiped for extra protection. Valves are located for easy access. Globe-type valves with non-rotating seats close tight, avoid wear on valve seats.
- **Spiral-wound gaskets** have proved their superiority over other types of gaskets for sealing bushings in the tank wall in over 6 years' continual use. Alternate plies of preformed springlike metal and non-metallic fillers provide unusual resilience and actually adjust themselves to changes in operating conditions. Gaskets can be installed without cements or grease. They can be quickly removed if required and may be re-used if necessary.
- **Shot blast cleaning, three coats of baked-on paint** formulated for high water resistance, and compound treatment of base and tubes in base area give superior surface treatment. A-4317

On utility systems all over the country Allis-Chalmers network transformers meet the test of reliable and economical service. New A-C network units are ordered repeatedly to take their place alongside the more than 1¼ million kva already installed.

You get unusual flexibility in choice. To simplify your application problems, Allis-Chalmers builds all three basic types: oil-filled, *Chlorextol* liquid-filled, and sealed dry type.

It will pay you to investigate the design and construction details of Allis-Chalmers network transformers before you order your next unit. Consult the A-C district office near you or write Allis-Chalmers, Milwaukee 1, Wisconsin, for more information.

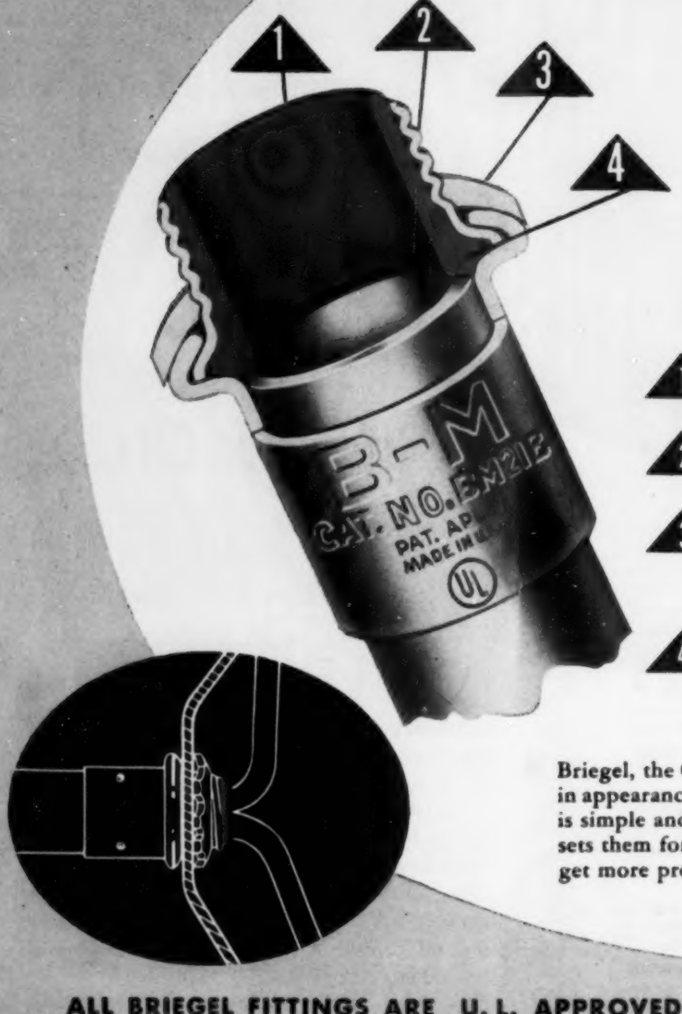
Chlorextol is an Allis-Chalmers trademark.

ALLIS-CHALMERS

A-C
ALLIS-CHALMERS

Red Throat

B-M 21 B, THE NEW INSULATED THROAT INDENTER CONNECTOR FOR E. M. T.



Four Ways Finer

- 1 Protruding rounded red plastic lip of bushing prevents cutting of insulation—eliminates shorts.
- 2 Full thread screws into all conduit fittings. Lip of RED THROAT bushing protects thread from damage.
- 3 Deep dished eight pronged lock nut is easier to drive on—screws flush to shoulder and digs into metal of box for vibration proof positive ground.
- 4 Permanent locked-in bushing insures smooth burr-free raceway for easy fishing. No extra work and costs no more.

Briegel, the Original Indenter Fittings are neater in appearance, easier and faster to use. Installation is simple and less expensive. Two quick squeezes sets them forever. Try B-M Indenter Fittings and get more profits from each job!

ALL BRIEGEL FITTINGS ARE U. L. APPROVED AS CONCRETE-TIGHT

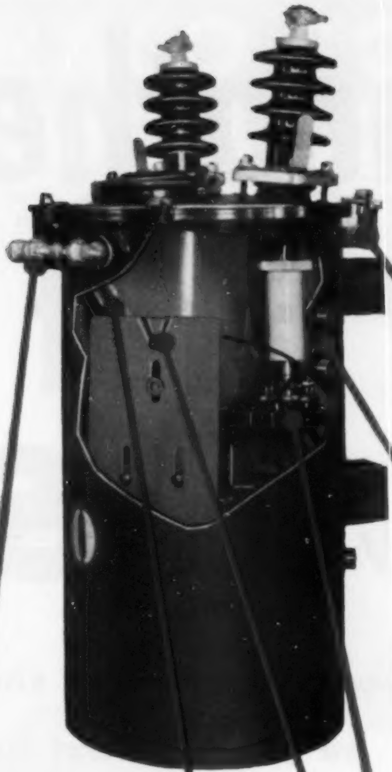
Order from Your Wholesaler!

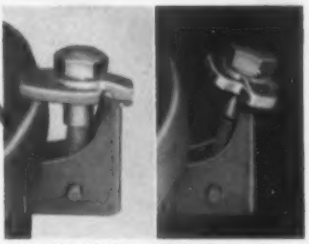
All B-M Indenter Fittings are U.L. Approved as concrete-tight and for general use (File Card E10863). Also comply With Federal Specifications W-F-406.

BRIEGEL METHOD TOOL CO.
GALVA • ILLINOIS

Warehouse Stocks in Principal Cities for Immediate Delivery!

NEW KUHLMAN FEATURES

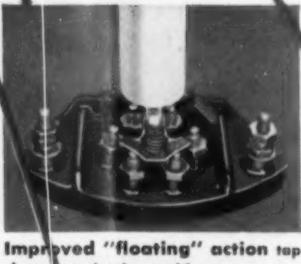




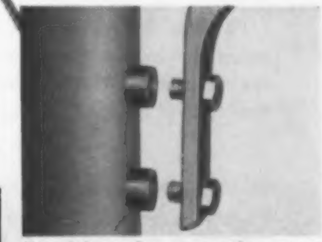
New hold down bars and nuts of forged brass maintain a uniform pressure-seal on transformer tanks . . . are not subject to rust or corrosion . . . do not have to be disassembled to remove cover as illustrated above (right).

BUSHING KEY
STUD LOCK

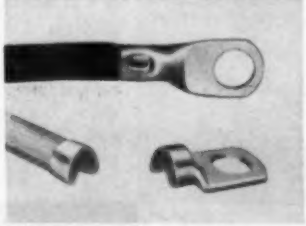
Low voltage bushings, and studs keyed to prevent rotation, eliminate all possibility of internal short circuits. Bushing connectors are designed for three way entrance of low voltage leads . . . from above, below, or front.



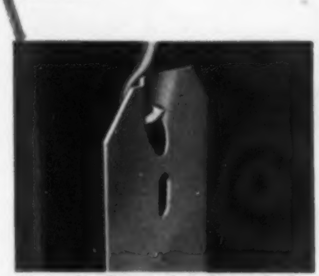
Improved "floating" action tap changer maintains positive pressure on both contacts by a spring actuated self-aligning mechanism.



Provisions for mounting either valve or expulsion type arresters are made on all Kuhlman transformers built to EEI-NEMA standards through 100 KVA single phase and 150 KVA three phase.



New crimped connections guarantee pullout values equal to 85% of the cable tensile strength and greater than 100% relative conductivity.

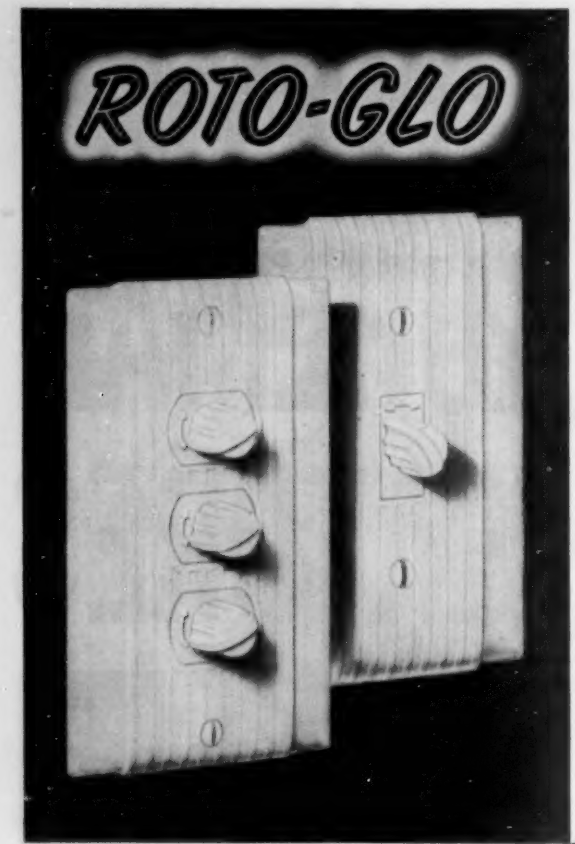


New die-formed indented slot in core clamp allows greater lifting hook clearance for ease in handling or removing core and coil assembly.

KUHLMAN

169

KUHLMAN ELECTRIC COMPANY, BAY CITY, MICHIGAN • CRYSTAL SPRINGS, MISSISSIPPI • SALINAS, CALIFORNIA



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. . . because switches should be SEEN . . . not heard

Available in P&S Despard type for combination wiring, or conventional strap type. P&S Despard type Roto-Glo switches are rated 15 A., 120 V., A.C., 277 V., A.C.; strap type, rated 15 A., 120 V., A.C.

P&S Roto-Glo switches can be used to *full current rating* on *fluorescent and incandescent lamp loads* — and on motors where full load current is not more than 80% of rating of switch.

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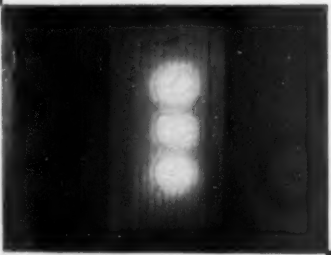
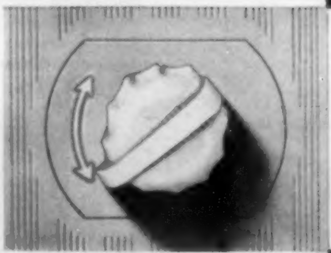


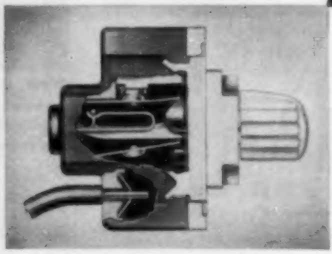
it's a LUMINOUS switch

A moment's exposure to any light source and the Roto-Glo knob will pin-point switch location all night long.



it's a ROTO switch

You turn Roto-Glo switches on just like a radio or television. The classic knob tells you it is a quiet switch at a glance.



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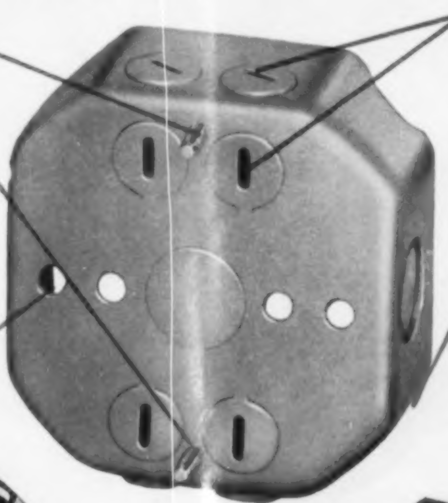
Entirely new mechanism prevents vibration and noise — can be installed in any position. Screwless terminals for quick, easy wiring.

RACO BOXES

Better Designed
Better Built
Better Finished!

ALL CLAMP SCREWS ARE STAKED!

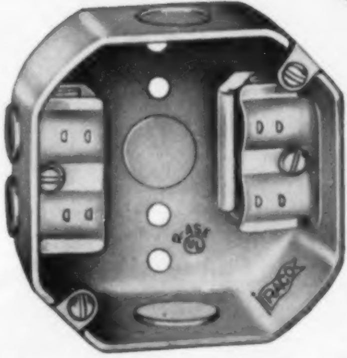
Raco clamp screws cannot work loose. Clamps and screws and boxes are always completely assembled when received. Clamp screws are extra long with tapered points for easy starting.



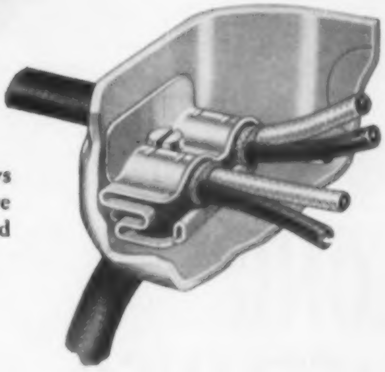
Pri-Outs easily removed with one quick, easy twist of a screwdriver. Properly located for side or bottom entry.

Nail holes for quicker, easier mounting.

All Raco Octagon Boxes have rounded corners for perfect fit in a round hole.



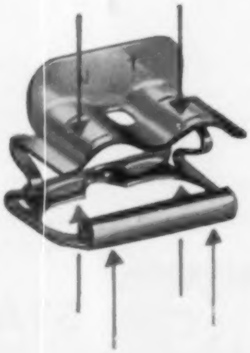
The illustration at right shows how the Raco Pri-Outs are used in both side-entry and bottom-entry installations.



RACO BOX No. 149–N CLAMPS

There's lots of wiring room in this popular Raco 4″ Octagon Box. Illustrated with the N Clamp for non-metallic cable, it is available with any type of clamp to suit your needs.

YOU'LL SAVE MONEY WHEN YOU INSTALL RACO BOXES



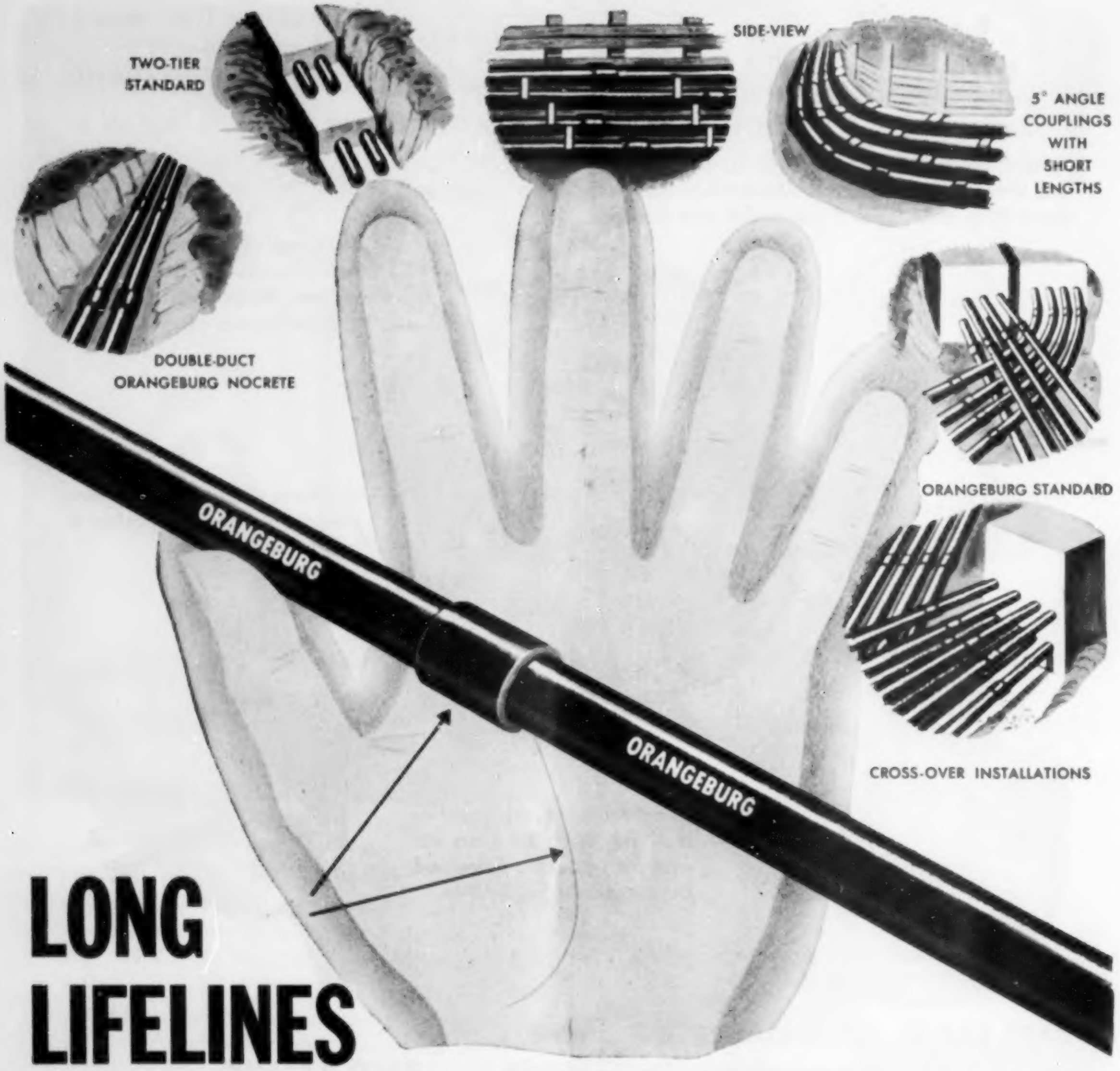
RACO N CLAMP

Arrows Indicate Pressure Points

Non-Metallic cables are gripped securely by the Raco N Clamp. Stand-up design holds clamp open to receive cable. No fumbling. Smooth surfaces of the pressure points assure a firm grip with no danger of injury to the cable.

You can Always Depend on Raco

ALL-STEEL EQUIPMENT INC. • Aurora, Illinois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SIDE-VIEW
5° ANGLE COUPLINGS WITH SHORT LENGTHS
DOUBLE-DUCT ORANGEBURG NOCRETE
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CROSS-OVER INSTALLATIONS

LONG LIFELINES

Since 1893, Orangeburg has served the Power and Light, Telephone, General Construction, Municipal and Industrial fields. Orangeburg Fibre Conduit's record for giving complete protection to underground electrical cables at minimum cost is well known.

Orangeburg material is impermeable, the joints are watertight — no corrosive ground waters get in. *Smooth bore* reduces pulling tensions on cables to minimum — safeguards the cable sheath from abrasion. Non-metallic Orangeburg does not corrode — resists acids, alkalies, salt, grease, oil. It is lightweight — yet tough, strong and resilient.

Orangeburg is a leader in every city and state. It saves money for users by faster handling, tooling and laying. A complete line of fittings, angle couplings, bend sections, bell ends . . . mean speed of installation . . . prevent costly delays. For more facts write Dept. ES-55.

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Write Today . . . **for brochure giving complete details of the remarkable new Ortho-88. In addition to installation and mounting data, it illustrates several examples of how Ortho-88 versatility can work for you. Catalog pages giving complete engineering data are included.**

Gibson
LIGHTING

Here's what advance design can do for you . . .

Save up to 50% on installation costs: The Uni-Race (shown above) is part of your Ortho-88. It is a rigid, light-weight, open channel-way containing a fixed power source (receptacle) for each fixture. Sections, 20-24 ft. long, are assembled and wired on the floor and hung as a unit. Fixtures, mounted without tools in minimum time, fall into perfect alignment automatically. The whole operation is accomplished easier, faster and more accurately with savings in time and materials up to 50%.

Save on materials: The amount of conduit required is reduced substantially. Receptacles, chain suspension accessories, cord and plug, etc. are completely eliminated.

Unheard-of flexibility for you: Fixtures may be mounted on the Uni-Race in continuous rows, or spaced at intervals of 4', 8' or 12'. They can be moved about, or additions made, as conditions demand without further electrical work and without interrupting service. Repairs, or replacements are made by changing fixtures without disturbing other fixtures on the circuit.

GIBSON
Manufacturing Co.
1919 Piedmont Circle, N.E., Atlanta, Georgia

Ingenious anchor manholes

Construction details of the Oso cable project were worked out by M. W. Heft, left, chief engineer, and Paul Martin, owner, of the Paul Martin Electric Co., of Corpus Christi. Here they examine blueprints.

◆ THERE SEEMED TO BE no ordinary right-from-the-book answer to the problem at hand. But, as Paul Martin pointed out, it was no ordinary problem.

Mr. Martin, who owns and operates the Paul Martin Electric Company in Corpus Christi, Texas, found himself confronted with the task of stringing a cable across a bay recently when he was installing a new radio communications system to serve the huge Corpus Christi Naval Air Station.

Nature of the bay

The thing that took the project out of the ordinary classification was the condition of the bay itself. Known as Cayo de Oso, the bay is about a mile wide, extremely shallow, yet virtually bottomless because of the quicksand.

Its water depth ranges from a few inches to, at the most, four feet. Below the water, however, is a 110-foot layer of muck and quicksand which has piled up over the centuries in what once must have been a formidable cavity.

A utility company's experience had already made clear that it is impractical to try driving poles in the unstable floor of Cayo de Oso with a view toward an above-the-water suspension of cable. The poles refuse to stay in place and demand constant attention.

Ruled out, too, was the possibility that the cable would rest on top of the quicksand and muck. The cable—10 pounds per linear foot—was just too heavy to be suspended in such fashion.

It was at this point that Martin willingly agreed that he and his staff were confronted with no ordinary problem. So they set about working out an unorthodox solution.

First they constructed two huge manholes—walled with concrete—on each side of the bay. An opening facing the water was left in both of the structures.

Cable for slacking

The cable was stretched across the Cayo de Oso and into the two manholes. At each opening, the cable was supported by a large grip held in place by a spring of the type used on railroad boxcars.

for underwater cable stringing

Paul Martin, owner of Paul Martin Electric Co., examines a portion of the Oso cable during a low-tide period. Most of the cable already has sunk well into the bay floor. Only portions near the banks are still visible. In the background is Peary Place Communications Center. The line laid by the Martin company will service Corpus Christi Naval Air Station.

Additional cable—attached to the communications line and actually a part of it—was coiled inside both manhole structures.

Thus, as the line across the bay sinks in the quicksand, the grip gives it more slack by feeding out the coiled cable from inside the manholes.

"The solution was just a matter of common sense, we believe," Martin said. "It was clear from the start that we had to make provision for the line to sink eventually all the way through the quicksand to hard dirt. It was simply a question of the practical way of doing that.

"We believe we found the right way because the line is sinking as we expected, and it is performing as we expected, too. In fact, it has never given us a minute of trouble."

Just how well Martin made provision for the line to sink is shown by the fact that the Cayo de Oso,

(*Continued on page 132*)

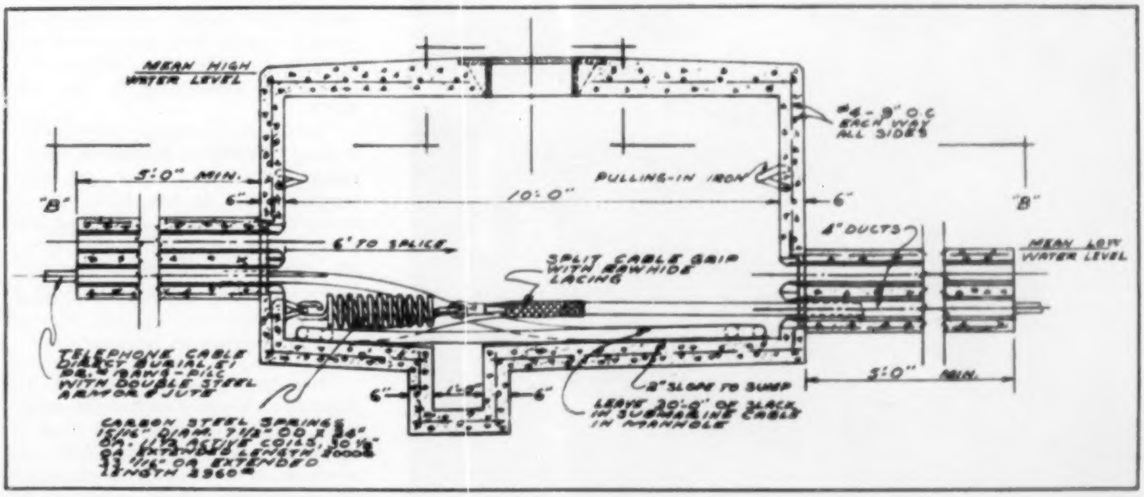

MEAN HIGH WATER LEVEL
#4 - 9" O.C. EACH WAY ALL SIDES
5'-0" MIN.
PULLING-IN IRON
"B"
6"
10'-0"
6"
"B"
4" DUCTS
6' TO SPLICE
MEAN LOW WATER LEVEL
SPLIT CABLE GRIP WITH RAWHIDE LACING
TELEPHONE CABLE DIRECT BURIAL, 51 PR. WITH DOUBLE STEEL ARMOR & JUTE
2" SLOPE TO SUMP
5'-0" MIN.
6"
1'-6"
6"
LEAVE 30'-0" OF SLACK IN SUBMARINE CABLE IN MANHOLE
CARBON STEEL SPRINGS

Diagram of the anchor manhole, ingeniously designed by the Paul Martin company for running a cable over difficult Cayo de Oso Bay near Corpus Christi. In the manhole on either side of the Bay is coiled a considerable length of cable which will allow for slack due to the line's sinking into quicksand.

Lawn sprinkling systems —

profitable sideline for electrical contractor

by Harry J. Miller

Owner of this lawn wants it green, but his pump is too small for the job. Not only will Ward Electric sell him a bigger pump and install it, they will also install the pipe system for his lawn sprinkler.

The electrician's helper already has the dies and wrenches and other tools necessary for pipe-bending, so he's a "natural" for the sprinkler installation work. It involves the same type work as conduit installation.

◆ SINCE BRADENTON, FLA., like other resort areas in the Southland, teems with retirees from colder states, and because the novelty of owning and enjoying a green lawn the whole year round appeals most strongly to these people, electrical contractor James R. Ward has found it good business (good electrical business, that is) to promote lawn sprinkling systems.

"It works out this way," said Mr. Ward, whose company, Ward Electric, does some of the biggest electrical wiring jobs on Florida's west coast, and has just landed a five-figure contract to wire Sarasota's new junior high school. "A lot of folks think a lawn sprinkling job is a plumber's chore. But it isn't.

"It requires pipefitting, and who is better qualified to fit pipe than our men who are forever throwing bends in conduit and kinks in tubing? Besides, we found we needed few extra tools and equipment to enter this field, since we already had the pipe cutting and threading apparatus to do the work.

"It doesn't require any great degree of skill to handle a sprinkling installation, and the contractor who knows little about water pumps, water pressures and pump capacities, can readily learn the needed techniques through study of pump manuals and other sources."

Fill-in work

Perhaps a major factor in influencing Ward Electric to enter this installation field was that it levels off periods when electrical work is inclined to be slack, since the local dry spells come along at just about this time.

"Far less inventory of plumbing materials is required than for an equal amount of wiring work," said Manager E. H. Wingert, "since the fittings and needed supplies are far fewer and simpler than those required in electrical layouts.

"And the profit margin often exceeds our net on wiring because we face less competitive bidding, and the work doesn't require expensive first class mechanics.

"For example, once the sprinkling system is laid out, we can shoot a couple of electricians' helpers over to do the job. Why let them hang around the shop during slacktime, sorting out and salvaging old material when they can be employed at this lawn-beautifying specialty?"

Valuable leads

Coming from a company which wires for Woolworth's; the Winn and Lovett Margaret Ann stores; newspaper plants and whose electrical work grosses enough to keep about 30 men working steadily, it would seem that the sprinkling wrinkle is a most welcome adjunct of the average electrical contractor. Not only does it serve Ward's purpose of keeping his electrical business on an even keel, but a sprinkling job often blooms into a valuable re-wiring contract.

But the job of selling a good lawn watering system needs a professional approach. Mr. Ward first examines carefully the area to be watered, the size of the well, the capacity of the present pumping installation and the size of the electrical service. Then he makes up a drawing, marking the installation and location of the sprinkler heads. From this drawing a blueprint is made. Armed with this print, Mr. Ward goes over the situation with the homeowner.

Need for electricity

Perhaps what the prospect seeks in the way of adequate watering is beyond the capacity of the pump, and this calls for a larger motor to deliver the required gallonage. In turn, this means new motor controls, perhaps magnetic switching; heavier wiring. Using the time-honored hydraulic analogy of the flow of electricity, it is simple to explain that all this means a heavier service from the standpoint of adequacy and safety.

Says Mr. Ward: "The extra electrical work we often get this way so legitimately in many cases

(*Continued on page* 130)

This pump was necessary to complete the installation of a sprinkler system, thus making the job a major sales and service contract.

To provide the proper system for this residence, a heavier service was required. Rewiring made the home safer and provided Mr. Ward with a nice job.

WARD ELECTRIC
WIRING FIXTURES
SPRINKLING SYSTEMS
PUMPS

Mr. Ward figures his sprinkler activities are just as profitable as his electrical contracting work, often more, since no competition is involved.

Technical discussions highlight

by Baron Creager

T. R. Halsey of San Antonio, left, general conference chairman, discusses program with Martin J. (Johnny) Myers, Jr., of Tulsa, Southwestern regional vice-president.

◆ WITH 100 MEN in attendance and 45 women to participate in social functions the Southwestern Regional Conference of the Illuminating Engineering Society convened last month in San Antonio, Texas.

The group heard two formal addresses by Duncan M. Jones, national president, from Montreal, Canada, delivered on successive days to luncheon meetings; and at conclusion of the fourth and final technical discussion they heard expressions of satisfaction for a successful convention from both Martin J. Meyers, Jr., Southwestern regional vice-president of Tulsa, Okla., and T. R. Halsey, general conference chairman, of San Antonio.

Program of slides

Even with the assurance of a productive meeting, it is probable none were more satisfied with conclusion of the conference than members of the host Alamo chapter of San Antonio, who were called upon to perform feats of leg work throughout.

Without exception, principal speakers used slides in such a manner that their presentations required lights off and lights on. But the light switches were a good 150 feet from the conference room. To reach them an Alamo chapter man had to pass through an accordian-type sliding door, cross a big ball room, mount the stage and go behind that to the light switches. A second man stationed himself in the accordian-type doorway and called instructions if the wrong switches were pulled. It slowed the tempo of procedure somewhat, but none complained, least of all the San Antonio hosts.

After the first technical session was opened by Regional Vice-President Meyers, H. D. Weisser, Lamp Division, General Electric, took over as chairman and introduced Vic Braunig, general manager of the City Public Service Board of San Antonio, who delivered the official welcome.

First discussion listed called for appearance of Kirk M. Reid, also of the Lamp Division of GE, but he was unable to appear.

Outdoor lighting

J. W. McFarland, of the Dallas office of GE, substituted for Reid with the assigned subject, "Lighting the Outdoors — Sports and Street Lighting," in which he used some of the material already prepared by Reid.

"Two decades ago street lighting was simple, as also were street lighting sources," he said, "but it was also recognized to be ineffective, inefficient and inadequate. Now it is not so simple, but it is efficient, adequate, comfortable.

"There was a time when 30 per cent of the light produced for street lighting was delivered to the street level, but now it is 63 per cent."

After continuing briefly with preliminary remarks, McFarland presented a long series of slides which, with accompanying comment, put emphasis on fluorescent.

From streets he branched into a discussion of high school football stadiums, with slides, pointing out that with effectively lighted high school football stadiums, income of such stadiums had increased as much as ten times and arrests for juvenile delinquency had showed a marked decrease. His slides and comments also covered railroad and shipping yards and construction. In connection with his talk he referred to the following table on 1955 distribution of street lighting by illuminants:

	Sockets	Lumens
Filament	96%	84%
Mercury	3	13
Sodium	½	1
Fluorescent	½	2+

William B. Carpenter, of the Superior Electric Co., Bristol, Conn., discussed "Dimming of Fluorescent Lamps," but first, with diagram

Southwest IES meeting

Southwestern regional conference assembled for first technical session.

slides, he delved into the origin of fluorescent, first commercially seen at the New York World's Fair in 1939, he said, and then devoted himself to a careful explanation of the characteristics of fluorescent lamps, hot and cold cathode, and of the various starter types.

He related early procedures in dealing with the problem of dimming hot cathode lamps and unsatisfactory primary experiences, then pointed out:

"About two years ago a large electrical manufacturer announced an electronic dimmer for rapid start fluorescent lamps. This dimmer contained two thyratrons, connected back to back with firing angle control. The dimmer operates exceedingly well and advantages of this type are excellent starting characteristics and wide range of control. The disadvantages are the warm-up time required for tubes to heat up, maintenance must be performed by technical personnel and the high initial cost.

"Heretofore it has been considered impractical to run several gas discharge lamps from a common impedance when the lamps were parallel connected. Inasmuch as the arc has a negative resistance characteristic, paralleling arcs result in one arc taking all of the current and the others getting none. However, if the discharge lamps are each provided with a separate ballast and a combination of ballasts and lamps paralleled with other combinations of ballasts and lamps through a common impedance, it was felt that this type of circuitry would work.

"An adjustable voltage transformer was reconnected as a series adjustable reactor, and it operated exceedingly satisfactorily as a dimmer in conjunction with rapid start lamps. The usual precautions of rapid starting circuitry must be observed including the starting aid, a metallic strip in back of each lamp and proper polarities observed in wiring. The operation of this dimmer can be likened in part to the gateing action of the thyratron tube. The dimmer used as a reactor can only absorb a certain amount of voltage when it is excited, beyond this, the dimmer saturates and can absorb no more voltage. Then essentially a constant voltage appears across the dimmer for a particular setting, and the constant difference between line voltage and dimmer voltage taken vectorially appears across the ballast and lamp combination."

Report on society

Following a luncheon presided over by Floyd A. Covington, Jr., who is also chairman of the Alamo chapter, the delegates heard President Jones declare in his society report that, "You, men and women of the regions, sections and chapters (in my opinion) are the veins that keep the society alive and furnish the desire and urge to elevate the society to greater heights of attainment."

He then discussed in detail the society's basis of organization and reported that on Oct. 1, 1953, the society had 7,785 members. Since then it has gained 1,187, but has lost because of resignation, non-

Six of the eight section, chapter or study club chairmen attending are shown here, left to right: John G. Felton, chairman, Southwestern section, Dallas; Floyd A. Covington, Jr., chairman, Alamo chapter; Quentin Hargrove, vice-chairman, Ark-La-Tex chapter, Shreveport; W. E. Short, chairman, Oklahoma chapter, Tulsa; Elmer Prag, chairman, recently-chartered Oklahoma City chapter. Unavailable for the picture were H. D. Weisser, chairman, San Jacinto section, Houston, and Tom Hart and John Kindle, study clubs, Amarillo and Corpus Christi.

payment of dues and deaths, 1,080. This left a total membership of 7,902 on Sept. 30, 1954.

President Jones said the society is fortunate in that classification of membership permits a wide range of personnel, unfortunate in that this very situation creates in the minds of some a conviction "that we are not strictly a technical society." Right to use of the terms, "engineer" and "engineering" are questioned, he said.

"While we do not wish to make an issue of this, it is a cloud that we should attempt to dissolve. Much criticism, in my opinion, comes about through the abuse given the term 'engineer,' particularly when applied to the title 'illuminating engineer.' No one should use this title who is not strictly qualified or licensed to attach this designation to his occupation."

He said that in the society, members ask themselves, "Are we keeping pace in this age of scientific development?" and added:

"A review of our technical accomplishments indicates that while we deserve praise for the work completed and the contributions made, we may have reached a crossroad in our technical progress."

And in conclusion, he declared, "Gentlemen, the day has come when we must realize that we have built a profession and we are continually aiming to strengthen it. We are consultants or engineers of light, engineering illumination.

Professional potential

"It can be a profession that is a dynamic one and an opportunity that if properly grasped and applied, will give all of us the satisfaction that we have made a notable contribution to the welfare of mankind, and quite unconsciously received a handsome monetary reward."

John G. Felton, Southwestern section chairman, of Dallas, and of the Sylvania Electric Products Co., served as chairman for the second technical discussion and introduced W. J. Robbins, Pittsburgh Plate Glass Co., as the first speaker.

With the subject "Color and Lighting," Mr. Robbins' presentation consisted mainly of running comment on a 35-minute color film, based on the scientific use of colors. Even in his short preliminary remarks, he used color demonstrations.

Importance of color

"Color has three basic qualities," he said, "hue, value and chroma. You can't do much with color, however, without proper lighting, which is a must. It is easy to sell color and lighting to the businessman because it means increased production at no additional cost and schools are now using color for good lighting and good environment."

The tremendous increase in the use of power and lighting and the existence of more than 51 million electric energy customers make necessary "Planning for a Maintenance Program," which was the assigned subject of T. C. Sergent, of the Sylvania Electric Products Co. With slides, including both charts and illustrations, he contended that business should be sold some kind of a group replacement system for lighting.

"The first psychological barrier is to get a person to admit that it may be worthwhile to throw away lamps before they quit. This chart shows how a lack of maintenance means loss of light after 5,500 hours. The practical businessman is beginning to recognize these things—and we know light is a tool.

"You can see here (in chart) that if there is no plan of replacing burned-out lamps, you get a partly-lighted place. And here is a scene (slide) showing part of a plant of the biggest automobile manufacturer in the world where 65 per cent of all lumens are

President Duncan M. Jones, right, congratulates Ruth Patterson, Dallas Power and Light Co., for being the first woman with an electrical engineering degree to become a member of I.E.S. in the Southwest.

delivered by mercury vapor and 35 per cent by fluorescent. They have found that this combination gives the best color balance."

After discussing the mortality curve of lamps with charts, Mr. Sargent continued, "Go at them (for a group replacement system) by considering costs, the rate per hour for labor, which varies in different localities, but the average cost of replacement per lamp is one dollar. Other arguments in your favor are interruption of the process of accuracy and how much loss of light can be endured with quality maintained. Then recommend some certain program, something that will get you and the customer to a common meeting ground, but remember that no one method will serve all situations.

Advantages listed

"Bonus advantages of a group replacement system are morale, appearance, less space needed for storage of lamps and less labor, plus a practical dollars and cents savings in accounting."

One feature of the second session was a four-man discussion of "Trends in Power Systems for Lighting" and first on the program with the subject, "Power System Design," was H. N. Hickok, application engineer for G-E, Houston.

"As lighting demand goes up, it is only natural that the cost of power systems goes with it and also the requirement of more maintenance," he said. "Many people are studying the problem and we are all cooperating to provide the customer with the best service at the lowest cost.

"The lighting system actually starts with design, and the two most impressive trends are advent of the 480/277-Y power system, and the higher voltage system, which has promise of a bright future. There is a 1.35 per cent saving in wiring cost by use of the 480/277-Y system while, at the same time, it is cheaper to transmit a given amount of power at high voltage."

Residential panels

"Lighting Panels and Circuit Devices" were discussed by Richard W. Morefield, distribution assemblies division of G-E, also of Houston. With slides and materials, he demonstrated new developments in residential lighting panels, calling attention to improvement features. He also showed slides on busway and he conducted demonstrations with duct and fixtures.

T. G. Huttlemeier, construction material division of G-E, San Antonio, discussed "Control of High Voltage Circuits," while "Lighting System Study for a Modern Office Building" was the topic of W. W. Henderson, Bernard, Johnson and Associates, engineers, located in Houston, Texas.

Third technical session, second day, with W. E. Short, Tulsa engineer, as chairman, began with a discussion, "What Lighting Can Do For Architecture," and brought Henry Walther, San Antonio architect of the firm of Weidner and Walter, San Antonio, to the rostrum with the statement that "anything you do for a building helps me for, unfortunately, the public still looks to the architect." He said he had found that in general, too many people want to use one lighting formula all the time.

"The architect expects the illuminating engineer to be a little genius and gives him problems that are often impossible," he continued. "The illuminating engineer, before he ever starts out, has two strikes against him. And the worst of the two is that after you get it all done, the architect comes along and changes the paint on the walls.

"But we can get too technical. We can't equate the thing and expect to get a solid answer. I think each room or area should be more carefully analyzed and then should be given special treatment.

Fixture design

"And in general I would say that I don't think the illuminating engineer knows the difference between an attractive and an unattractive fixture. We get in our office three pieces of literature on lighting every week, and where do you think this literature goes?

"It goes into the waste basket, of course, for we have no room to keep all that literature and, besides, you are the people supposed to know all about it. Why don't you go to the architect with a choice of several fixtures? You should use more imagination on things like that, for we, the architects, don't know.

"Of course, up until the past decade, there have been architects who thought they were little tin gods and wouldn't listen to anyone."

Lighting progress

The "Lighting Progress Report," by E. W. Beggs, chairman of the progress committee of I.E.S., and of the Westinghouse Lamp Division, consumed a large part of one session. In delivering this report, Mr. Beggs worked almost entirely from slides, beginning with the historical background of lighting,

(Continued on page 122)

People come from a 50-mile radius to inspect the Queen City Electric Company's line of lighting fixtures which includes a dozen different types of crystal chandeliers, ranging in price and quality from $115 to $225.

Crystal chandeliers build store traffic

◆ TWO IMPORTANT POINTS can be drawn from the experience of the Queen City Electric Co., in Sedalia, Mo.: (1) Despite all of the trends toward modern and modernistic lighting, there is still a substantial market for expensive, imported crystal chandeliers, and (2) the combination of an extensive lighting fixture display with an electrical contracting business can be especially profitable.

Last year, the Queen City firm sold twenty crystal chandeliers, representing a volume of about $5,000 and expects an even better sales record on these imported chandeliers this year. Of course, this represents only a small portion of the total sales volume in fixtures, but it is important because of its implications and because of the special effect these chandeliers have had in attracting visitors to the company's fixture showrooms.

Important part of business

Selling crystal chandeliers is only one phase of the many activities of the firm which provides diversified electrical contracting service, including both heavy work on large commercial accounts and lighter work such as home wiring and installation of lighting fixtures. Everything, in fact, except selling home appliances.

However, Tom A. Hurley, president of the company, A. J. Hurley, secretary-treasurer, and Tom Hurley, Jr., who masterminds the contracting department, all agree that the crystal chandelier business is an important part of the firm's over-all perspective of providing a complete lighting fixture service to homeowners.

Normally there are eleven em-

Heavy traffic hub is this eight-foot display fixture devoted primarily to outdoor lighting fixtures. Black wrought iron fixtures have a strong appeal to patrons in this section. Outdoor lighting equipment sales climbed 20 per cent after this display was installed.

QUEEN CITY ELECTRI
GOODYEAR
NO

A good central downtown location is the Queen City Company's best asset.

ployees on the firm's contracting crew and they work out of a large warehouse and office building. Current contracts include a large nearby Government air base, public buildings, schools and several large retail stores.

Retail operations

A smart downtown retail store, centrally located in the city's business section, contains a top line-up of gift wares, lighting fixtures and related items including china, holloware, glassware, etc. The front section of the showroom, which features a dropped ceiling, is utilized for gifts. The back portion contains a varied overhead display of lighting fixtures plus a series of island display fixtures utilized for porch and outside fixtures. One fixture is devoted exclusively to small related accessories.

Containing a total inventory of $30,000, the firm is a popular port of call for homeowners and building contractors who like the convenience of shopping for fixtures in an appealing sales environment. Also, the tie in between giftware and lighting fixtures, according to the two owners, is natural and easy.

Lamps tie in

An added feature which also ties in neatly with the lighting fixture department is lamp inventory that normally includes two hundred different types, sizes and styles of lamps ranging from "low end" to top-quality models. Sales of lamps contribute one-third the volume of business.

"Fireplace accessories, including andirons, fire sets, rails and mantels," according to A. J. Hurley "are other items which interest homeowners who come in with the idea of buying only lighting fixtures for their homes, then decide to purchase other items."

The striking overhead lighting fixture display includes units for bathrooms, dinettes, kitchens, living rooms and bedrooms. Other fixtures are placed in focal spots in window displays where they catch the eye of passing traffic. Lighting fixture sales comprise one-third of the total volume.

Contracting sales

"Our contracting service is a definite aid in moving light fixtures," A. J. Hurley said. "When we wire a new home, our workers are always alert to opportunities to tell homeowners of the large display of fixtures at our downtown store. They discuss the ease of inspection and the convenience of shopping where they may make comparisons between all types and styles."

"The light fixture installation is often handled through the builder," noted Mr. Hurley, "with a certain sum set aside for purchase of fixtures. But here again, the downtown store display setup is a definite advantage since building contractors realize that homeowners like to make their fixture selection from a varied stock. The average new homeowner buys at least $100 worth of fixtures from us."

The Hurleys are proud of the way the stock of imported chandeliers has brought in customers. Not only does this merchandise make the firm money, but the chandeliers enhance the appearance of the showroom and give the operation prestige. Gaining a reputation in surrounding communities as an establishment that stocks expensive chandeliers creates valuable

(Continued on page 127)

Will today's contractor be in business tomorrow?

by Walter R. Stone
Chief Electrical Inspector
Fort Worth, Texas

◆ A GOOD DEAL of purposeful brooding recently has led me to ask not what effect the electrical industry has had on the "new revolution," but how the changes now taking place so rapidly will affect the men now in the electrical contracting business, men who believe themselves to be equipped for service — until they are called upon to perform.

But on those rare occasions when they are called upon for something a little out of the ordinary, it is tragic rather than humorous to see them scurrying to find a man who knows something about "this new stuff." Rapid scanning of published material in an effort to learn in a few hours whole new techniques, is abandoned at the end of a frantic day and a call to the factory for an expert saves the face of the contractor—this time. What about next time? What about tomorrow?

Advent of automation

In short, Mr. Electrical Contractor, are you competent to cope with the twin trends of automation and nuclear energy?

Automation is here now in the beginning stages. The singularly dramatic advance of control equipment brought about by recent achievements in electronics and communications research will leave the mediocre electrical contractor with his thirty-ampere attainments with nothing to sell that is worth buying. With a new degree of perfection, the continous-flow concept of industrial plants is flowing beyond the abilities of the average so-much-an-opening wireman. Within ten years nuclear energy will increase this gap. Can you make the transition? How will you make it? What are your plans?

There is still hope and time, but not too much of either. Among my purposeful broodings, I have gathered together a few items for you to think about. It's not that I am trying to be an "egg-head." I just think that it's time to think. I think that new ways of doing things must be accepted and kept up with. And I think that the real so-called "egg-heads" are bringing about changes a good deal more rapidly than most of us "practical minded" pessimists are willing to admit are possible. I think also that if we keep up, we are going to find it necessary to match their ingenuity with our efforts. So think with me along these lines for the moment if you will:

Prepare for installations

Automation will be given preference in new plants which can be designed from the ground up rather than in old plants where shut-downs, conversions, and redesigning will be more costly and less satisfactory. More new plants than ever are going to be built in the South and Southwest. Are you prepared to install and maintain the complicated electrical controls and equipment in them? Do you know how? Will you know how when your phone rings? The day is coming when your phone will dance if word gets around that you can say, "Yes, I know how."

In the past it has taken a long time for a new device to outmode an older one and eventually render it obsolete. But that is no longer so. The past is behind us. In the last fifty years, for instance, we have progressed as much as we did from the beginning of history until the beginning of the twentieth century. From manpower to mulepower was slow. The gasoline engine did not put the blacksmith out of business immediately. It took several years. Gradual though these changes may have been, however, no one can deny that the tractor has outstepped Old Beck, the bulldozer has nosed out the wheelbarrow, and milking machines have left little enough for the calves.

But each decade brings more rapid changes, leaving less and less time for us to learn more and more. We must be capable of learning more in a shorter time if we are to keep up. Can we do it? Can you do it? Have you started yet? When will you start?

Index of progress

To illustrate by an index of speed, it took half a million years to increase our rate of travel from four miles an hour to forty miles an hour. The last fifteen years has seen an increase of from less than 500 miles an hour to over a thousand. The real index of progress, however, which has permitted such dramatic advances has been the increase in knowledge. We are at the point now where we can control our environment. But the point which I am bringing out is that this knowledge is piling up so rapidly that the average individual is lagging behind.

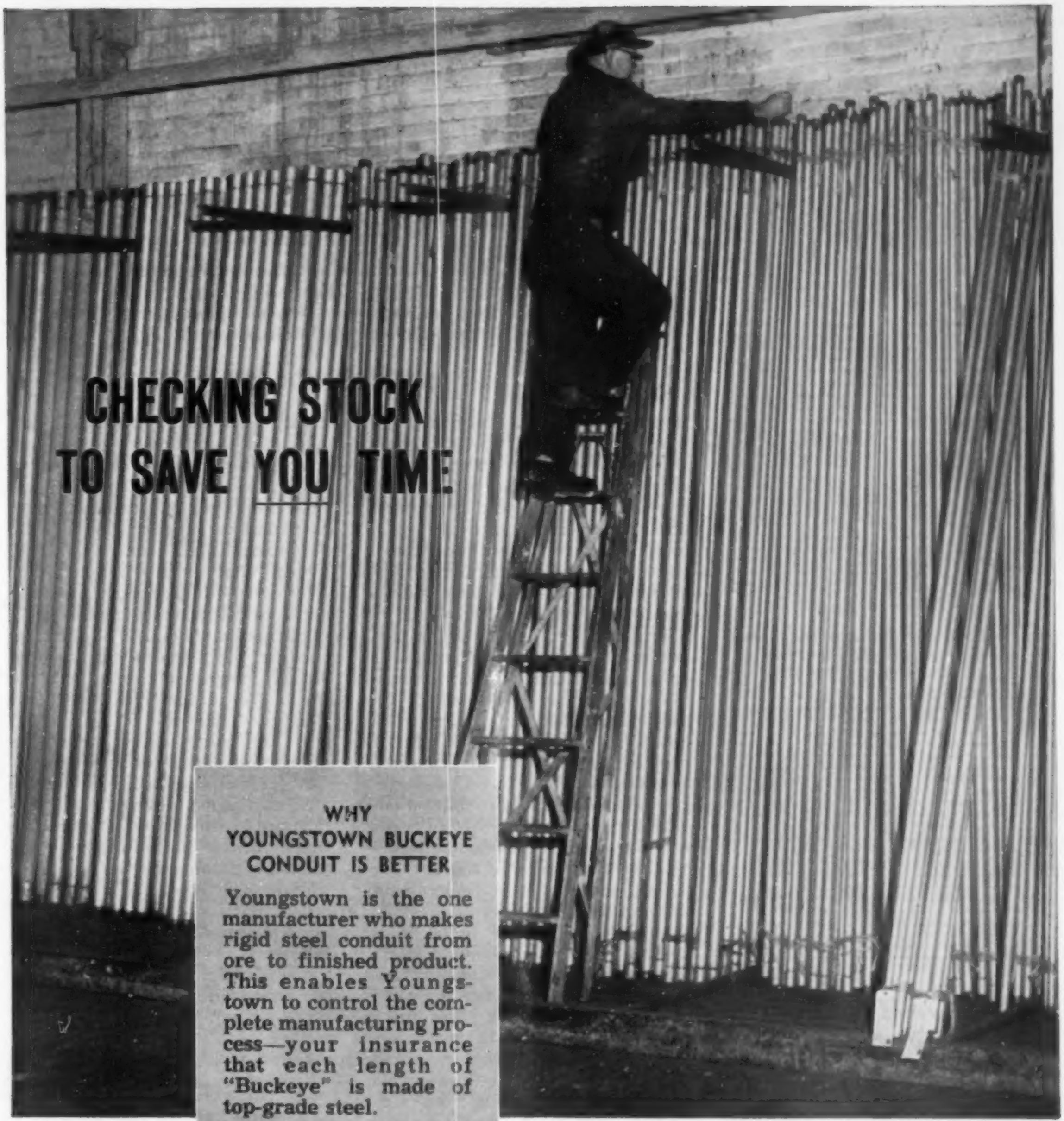
Specifically, although more is known accumulatively in the electrical sciences than ever before, the run-of-the-mill electrical contractor is losing his grasp of the total knowledge at an accelerating rate. As the demands on him are becoming more technical and exacting, his limited field of know-how is becoming a rapidly decreasing percentage of the total know-how which he will need. The scientific accumulation, in short, is outdistancing individual contractor capacity. What does all this mean?

Facing competition

Does it mean that tomorrow's electrical contracting will be done by industrial giants? Will the medium-sized and small contractors eventually find competition unsurmountable? Is it surprising that far too many little men are facing this challenge of tomorrow with despair and resignation? Are you gloomy? Are you going to move out or move ahead? Have you made your first move? When will you make it and in what direction?

There is hope—hope for the big and the little and the middle-sized. There is hope for you. You can

(*Continued on page* 131)



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Application of capacitors

This is the first of three articles on secondary capacitors. The next article will discuss such advantages as increased load capacity, reduced losses, and voltage improvement.

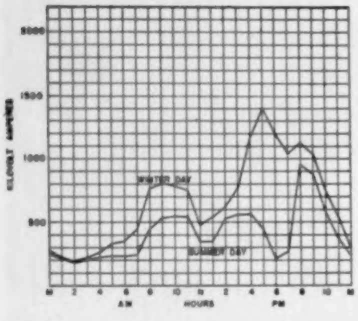


Fig. 1. Load curves for a residential distribution feeder prior to 1948.

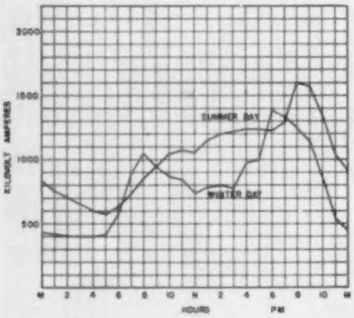


Fig. 2. Recent load curves for residential distribution feeder with large air conditioning load.

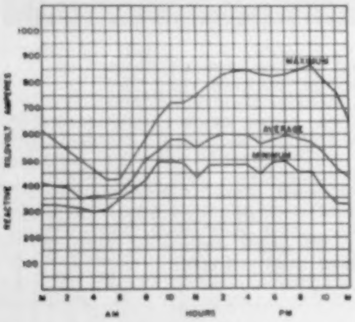


Fig. 3. A summary of the reactive kva required from records over four seasons of the year. The small variation of the annual minimum and average requirements is to be noted.

◆ THE USE of secondary distribution capacitors has been brought about by the rapid postwar growth of residential loads and the increased use of electrical appliances. Such capacitors are recognized as an important aid to economic power distribution as well as a valuable emergency device where loads have grown ahead of planned system expansion. In particular, the popularity of attic fans, room coolers, and air conditioning installations has accelerated the use of secondary capacitors in the South. That suitable capacitors are now available for this specialized application is due in no small degree to foresighted distribution engineers who anticipated the need and urged their development before the need became acute.

The moderate cost, convenience of installation, and availability of secondary capacitors favor their use for emergency relief of overloaded distribution transformers, and to eliminate low voltage complaints. Nevertheless, the more general application of secondary capacitors on a distribution system must be justified on economic grounds. The benefits from secondary capacitors are increased load capacity, reduced load losses, and improved voltage level. These may also be obtained by such alternate changes as to larger transformers, heavier conductors, voltage boosters or regulators, or by circuit re-arrangements such as banked secondaries and overhead networks. To be economical, the secondary capacitor must provide these benefits in the desired amount at less cost than with other methods.

The engineering of secondary capacitor installations is largely a matter of economic evaluation. This requires careful consideration of such factors as installation costs, fixed charges, and values for energy demand and losses based on accounting practices that apply to the particular power company. Individual attention to determine size and location cannot be afforded for each small installation. An overall analysis that is founded on average conditions must be made. As a result of these factors, secondary capacitors are applied according to different formulas in which various numbers may be used. This necessarily leads to a variety of answers.

As experience is gained in the application of secondary capacitors, certain methods of analysis and evaluation develop. It is the purpose of this paper to formulate these into a procedure whereby the benefits can easily be evaluated to suit local conditions. It is proposed that the problem be viewed as "The Application of Capacitors Wholesale," and this approach to the application will be demonstrated. In addition, certain available types of equipment will be described and the importance of planned installation procedures will be discussed.

Load pattern changing

In the early days of the electric power industry, the utility was essentially an illuminating company that sold the domestic consumer a more modern and convenient type of illumination than the one previously available with gas or kerosene. The evidence of this still remains in the name of many large power companies. In time, the convenience of home appliances became important but the illumination function remained as the determining factor in the load pattern.

Early postwar load curves such as Figure 1, for example, show the predominance of lighting load on

to overhead secondaries

by Hamilton Brooks
Supervising Engineer, Capacitor Section
Westinghouse Electric Corp.
East Pittsburgh, Pa.

the annual load factor as well as on the daily pattern, and the growth of appliances had not yet altered the established shape. Now, this load pattern is undergoing a radical change in many sections of the country. The principle reason for this is the increasing use of air conditioning equipment, and the full impact of this new type of load is yet to come.

The nature of this change is illustrated by Figure 2, which shows load curves for a distribution feeder comparable to that of Figure 1, but for a region where large air conditioning loads have been connected. It will be observed that the peak load periods have been reversed, and that instead of a mid-winter peak due to the lighting demands of early winter evenings, there is now a mid-summer peak as a consequence of air conditioning demands.

A load such as shown in Figure 2 has desirable characteristics in addition to the important fact that it represents more power being sold. The load factor is obviously improved both as regards the daily demand as well as the seasonal requirements. However, this has been attained at the expense of high power factors. Instead of peak load power factors of 90 per cent and more, power factors of 80 per cent are common and some as low as 70 per cent are being reported.

A factor equally disturbing to the distribution engineer has been the unpredictable growth, and the epidemics of transformer overloads and low voltage troubles brought by hot weather.

Secondary capacitor use

The decreased power factor of this new load favors secondary capacitors as a means of overload relief. Secondary capacitors, however, are fixed capacitors, there being no economical method yet available for switching them with load changes. Thus it is required that they be applied with regard to the minimum reactive kilovolt-amperes that flow at light load, rather than to the peak load.

Figure 3 shows the lagging reactive kilovolt-amperes for the feeder of Figure 2. These are from records taken during the four seasons of the year, and show the minimum and maximum values recorded, as well as the yearly average. The fact that neither the yearly average, nor the minimum reactive load fluctuates greatly over the 24 hour period is important in determining the maximum amount of fixed secondary capacitors that may be connected to the circuit.

Figure 4 shows the lagging reactive kilovolt-ampere curves redrawn and labeled "Capacitor Kilovar Requirements" in order to point more clearly to that portion of the reactive load that may be supplied by means of secondary capacitors. The amount indicated for fixed secondary capacitors is such as to raise the power factor to unity for minimum load conditions. However, considerable overcorrection can be tolerated on the distribution circuit, and in many cases as much as 50 per cent more capacitor kilovars than shown could be applied without experiencing any serious difficulty. An undesirable degree of voltage rise during light load periods is the principle hazard.

Figure 4 also serves to bring out another consideration in the application of secondary capacitors. In many cases, primary feeders have already been loaded with banks of fixed primary capacitors. In fact, as will be discussed later, sec-

(Continued on page 122)

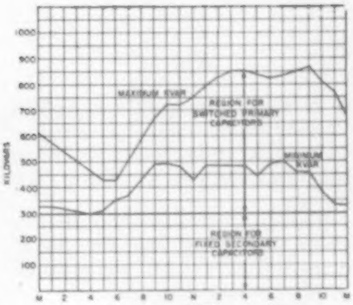


Fig. 4. The region for fixed capacitors and switched capacitors based on the annual minimum and maximum reactive kva shown by Fig. 3.

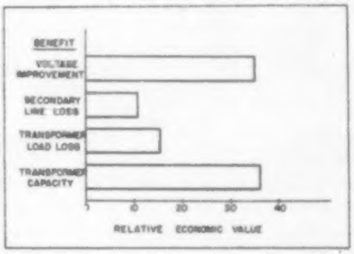
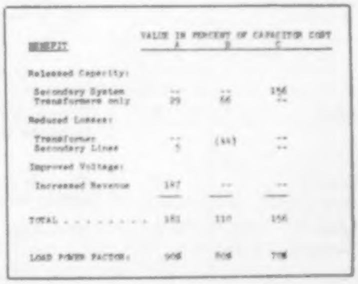


Fig. 5. The relative economic value of the possible secondary capacitor benefits that may be found under favorable conditions.



BENEFIT	VALUE IN PERCENT OF CAPACITOR COST A	B	C
Released Capacity:			
Secondary System	--	--	156
Transformers only	29	66	--
Reduced Losses:			
Transformer	--	(44)	--
Secondary Lines	5		--
Improved Voltage:			
Increased Revenue	147	--	--
TOTAL	181	110	156
LOAD POWER FACTOR:	90%	80%	70%

Fig. 6. The value of secondary capacitor benefits as found by studies on three different systems.

Distribution substations

Part IV

◆ A TABULATION of "system-substation" combinations is given in Table I to compare the operating functions for various service conditions.

Perusal of the preceding sections, which functionally describe the various substation types and arrangements, points out the fact that there is a wide variety of combinations to choose from. The particular type and arrangement best suited to serve a given load area will be selected on the basis of comparative economics. All types to be compared should satisfy the predetermined service continuity requirements. All types should also provide voltage control within the predetermined tolerances.

Comparison of types

Actually it is not necessary to compare the many different possibilities that first glance might indicate. There is a correlation between substation type and type

Table I—Substation-System Operation Comparison Table

Type of Substation	Fig. No.	Subtransmission Line Outage	Transformer Fault	Breaker Bypass Facilities	Voltage Regulation
Radial Subtransmission System					
Radial	7	Outage until line restored	Out of service until arrival of Mobile unit or field cutover	Mobile unit or field cutover	Bus, single level*
Primary Network	8	No outage	No outage	None required	Bus, single level*
Loop Subtransmission System					
Radial	7	Outage until primary switched to good line	Out of service until arrival of Mobile unit or field cutover	Mobile unit or field cutover	Bus, single level*
Duplex	11	90 cycle outage on half of feeders	90 cycle outage on half of feeders	Power circuit breaker	Individual feeder (Group Feeder for Double Duplex)
Spot Network	9	No outage	No outage	Mobile unit or field cutover	Bus, single level*
Low Voltage Selective	10	90 cycle outage on half of feeders	90 cycle outage on half of feeders	Mobile unit or field cutover	Bus, group feeder or dual level*
Multiple Subtransmission System					
Radial	7	Outage until primary switched to good line	Out of service until arrival of Mobile unit or field cutover	Mobile unit or field cutover	Bus, single level*
Duplex	11	90 cycle outage on half of feeders	90 cycle outage on half of feeders	Power circuit breaker	Individual feeder (Group Feeder for Double Duplex)
Spot Network	9	No outage	No outage	Mobile unit or field cutover	Bus, single level*
Low Voltage Selective	10	90 cycle outage on half of feeders	90 cycle outage on half of feeders	Mobile unit or field cutover	Bus, group feeder or dual level*

* If required, supplementary feeder regulators can be used or regulator-reactor-transfer bus can be included at the substation to give individual feeder regulation.

in system planning

by H. M. Bankus

Electric Utilities Engineering Section
General Electric Company

Table II—Substation Application Comparison

Substation Type	Load Area Characteristics		Particular Field of Application
	Load Densities	Type of Area	
Radial with Radial Subtransmission	Light to medium	Rural, Suburban, Residential, Small Industrial	Areas where economy is important, and service continuity is not critical
Single Circuit Integral	Light to medium	Rural, Suburban, Residential, Small Industrial	Areas where radial service is satisfactory and economics favor small unit size. Also for temporary or seasonal loads, industrial loads, and new residential developments
Radial with Multiple or Loop Subtransmission	Light medium heavy	Suburban Residential Small Industrial	Similar to simple radial except that higher degree of service continuity is required
Primary Network	Medium to heavy with fairly uniform load density	Suburban Residential Commercial Small Industrial	Areas where high degree of service continuity at moderate cost is required. Limited somewhat in application by load area geography
Duplex	Medium	High Class Residential, Commercial, Small Industrial	Areas where very high degree of service continuity is required, where individual feeder regulation is desirable, and/or where small (2 feeder) substation size is economical
Double Duplex	Medium	High Class Residential, Commercial, Small Industrial	Similar to duplex except larger substation size and group instead of individual feeder regulation
Spot Network	Heavy	Commercial, Urban Downtown, Industrial	Areas where service continuity is very important and where there is a heavy concentration of load in a small area
Low Voltage Selective	Medium to heavy	High Class Residential, Urban Commercial, Industrial	Similar to double duplex and radial with multiple or loop subtransmission but in larger sizes

of load area. Thus some types of substations would automatically be eliminated from consideration, once the load classification is specified. There is also a correlation between optimum substation type and load density of the area to be served. Optimum substation types do overlap, and it is because of this that economic comparisons are needed.

The radial type substation is applicable over a wide range of substation sizes and may have one or many feeder positions. This applies both to the simple radial substation and to radial substations with loop and multiple subtransmission. Some of the other types are more limited in their application.

The single circuit integral type substation is most applicable for economically obtaining individual feeder voltage regulation in areas where substation size would normally be small, and for use as a temporary and semi-mobile type of station for rapidly changing loads. It is limited to small kva sizes by the load that can be carried on a single feeder. Normally it would not be used in heavy density areas because the problem of obtaining a sufficient number of sites spaced close enough together would become too great. However, sometimes several single circuit substations are concentrated on one site to provide individual feeder regulation for each feeder, and allow total substation rating to grow as load grows.

Primary networks

The primary network type substation is limited by geography of the load area. It is best applied when load density is fairly uniform over a wide area. Since there are closed ties between the feeders radiating from the various substations in the network, there must be a minimum of two feeders in each substation. Three to five feeders per substation is more common. In a primary network system there are no express feeders. Each substation serves the load area surrounding it. Therefore, substation size is small—generally ranging from 2500 kva to 5000 kva in a 4 kv network.

The duplex scheme is limited to two feeder positions per substation. Therefore, substation size is limited by the amount of load that a utility is willing to carry on one feeder. However, more than one duplex substation can be located on the same site to obtain greater total substation capacity than one duplex unit would provide. This is one method to obtain individual feeder voltage regulation together with a high degree of service continuity. The double duplex and multiplex substations supplement the duplex and are applicable for substations with more than two feeder positions when individual feeder regulation is not required, but group regulation per pair of feeders is desirable. They are applicable to a larger kva range than the straight duplex substation.

Spot networks

Spot network and low voltage selective substations are best adapted to large stations where their greater cost is spread over more load. Minimum size substation of either type would contain three feeder positions. If only two feeders were needed, there would be no need for the transformer breakers in addition to the feeder breakers, and a duplex type substation would be used.

The spot network substation finds its principal application in small areas having a very heavy concentration of important load. Examples are large industrial loads, and supplies for a downtown low voltage network. Thus it is normally applied to load classifications and in areas where one or several spot network substations would be surrounded by other types of substations. Application of the low voltage selective substation is similar to the larger radial and multiplex types. It is best adapted to areas where building block size is large, and where a high degree of service continuity is required.

Table II indicates the general field of application of some of the more common substation types. Comparison is made on the basis of load classification and load density. The particular field where each is most applicable is also indicated.

Economics of substation types

When more than one substation type will provide the quality of service required, and when more than one type is suitable for application to the load area under consideration, then selection of the particular building block unit for that area resolves into a question of comparative economics. It will be helpful to see how costs actually compare for various substation types and arrangements.

To obtain a basis of comparison, the cost of a simple radial substation with radial subtransmission will be assumed to be 100 per cent, and the cost of other types will be compared to this base. So that comparisons will be on an equitable basis, the same number of feeder breaker positions will be assumed for the radial substation, and for the type that is being compared with it. For example, a duplex substation is intrinsically a 2-feeder substation. Therefore, duplex substations will be compared with 2-feeder radial substations. Similarly the double duplex scheme is a 4-feeder arrangement, so double duplex substations will be compared with 4-feeder radial substations, for the practical range of sizes.

In the case of several other types where the number of feeder breaker positions is not so firmly fixed by substation arrangement, the feeders of both radial substation base, and the type which is being compared with it are allowed to increase as substation size increases.

Principal comparisons are made based on substations rated 34.5 kv high voltage and 4.16 kv low voltage. However, the effect of other voltage ratings on the economic comparison of substation types is also shown. Load per feeder varies with substation size, but no cases are considered where load exceeds 2500 kva for a 4.16 kv feeder.

Transformer capacity

Radial type substations have no provision for maintaining service continuity with a transformer removed from service. Most of the other possible substation types do have this provision. Therefore, the transformer kva required to serve a given load will of necessity be greater for these other types than for a simple radial substation. In

(*Continued on page* 129)

Table III—Summary of Equivalent Transformer Ratings and Number of Feeder Breaker Positions for Substations Rated 34.5 KV to 4.16 KV

Simple Radial		Radial With Loop or Multiple Subtransmission		Primary Network		Duplex		Double Duplex		Spot Network		LV Selective		Single Circuit	
Trans. KVA Rating	Fdr. Pos.	Trans. KVA Rating	Fdr. Pos.	Trans. KVA Rating	Fdr. Pos.	Trans. KVA Rating	Fdr. Pos.	Trans. KVA Rating	Fdr. Pos.	Trans. KVA Rating	Fdr. Pos.	Trans. KVA Rating	Fdr. Pos.	Trans. KVA Rating	Fdr. Pos.
1,500	2	1,500	2	——	—	2-Trans. 1,000/1,150	2	——	—	——	—	——	—	2-Trans. 750	2
2,000	2	2,000	2	——	—	2-Trans. 1,500	2	——	—	——	—	——	—	2-Trans. 1,000	2
2,500	2,3	2,500	2	2,500/3,125	3	2-Trans. 2,000	2	——	—	——	—	——	—	2-Trans. 1,500	2
3,750	2,3,4	3,750	3	3,750/4,687	3	2-Trans. 2,500/3,125	2	2-Trans. 2,500/3,125	4	2-Trans. 2,500/3,125	4	2-Trans. 2,500/3,125	4	3-Trans. 1,500	3
5,000	4	5,000	4	5,000/6,250	4	——	—	2-Trans. 3,750	4	2-Trans. 3,750	4	2-Trans. 3,750	4	4-Trans. 1,500	4
7,500	4,5,6	7,500	5	7,500/9,375	5	——	—	2-Trans. 5,000/6,250	4	2-Trans. 5,000/6,250	4,6	2-Trans. 5,000/6,250	4,6	——	—
10,000	4,6	10,000	6	——	—	——	—	——	—	2-Trans. 7,500	6	2-Trans. 7,500	6	——	—
15,000	8	15,000	8	——	—	——	—	——	—	2-Trans. 10,000/12,500	8	2-Trans. 10,000/12,500	8	——	—

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advantages of easier installation and

Alden adds miniature

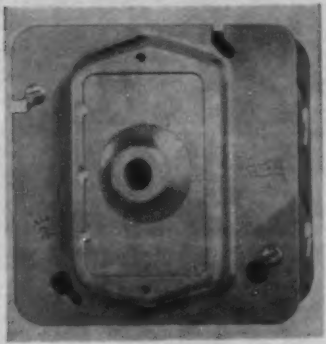
Unlike other connectors for Min-

ELECTRICAL SOUTH'S
Annual Review of New Products

Wiring products and devices

New device permits easy knockout removal

A NEW DEVICE designed to eliminate time wasted in finding and cleaning outlet boxes has been introduced by All-Steel Equipment, Inc., Aurora, Ill. Called the Raco "Locator" Device Cover, this unit also does away with bits of plaster lodging in the pipe and avoids expensive cleaning operations before wiring.



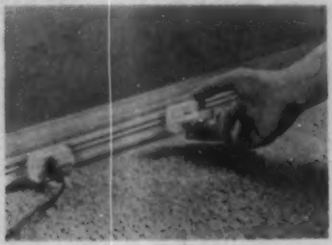
The Raco "Locator" positions over the outlet box before plastering. After plastering, the raised section of the device remains in sight. Even in instances where warped or imperfect studding requires extra thicknesses of plaster, a raised embossment in the center of the knockout is always visible. A leverage hole in the embossment permits easy removal.

The Raco "Locator" is available in two sizes: ½-inch raised and ⅝-inch raised.

For additional data, ask for item 5001, using the return card below.

BullDog's Electrostrip provides adequate plugs

A NEW PRODUCT by BullDog Electric Products Co., Box 177, Detroit 32, Mich., called Electrostrip is designed to do away with the inconvenience and annoyance of badly located or inadequate wall plugs. It also eliminates the necessity for long extension cords, and the dangerous fire hazards they create.



Although rigid, this vinyl plastic strip can be hand molded to go around corners and posts. Electrostrip is easily and quickly attached along the baseboards or any place on the walls. Specially designed and fused receptacle plugs can then be attached at any point along the strip. Raising a tiny lever releases the plug for re-use at another location. The strip can be wired neatly to existing outlets, or can be initially installed in new constructions.

Electrostrip, after a number of years in development, is now listed by Underwriters' Laboratory. It is available in 250-foot rolls through authorized electrical distributors. Electropstrip is ivory in color and blends harmoniously with the color scheme of any room.

For additional data, ask for item 5002, using the return card below.

Advance ballast affords size, weight reduction

A RADICAL new rapid start ballast for the 96T12 rapid start lamp has been announced by the Advance Transformer Co., 1122 W. Catalpa Ave., Chicago, Ill. This ballast, catalog BRQ-2 S110 affords approximately 30 per cent reduction in size and weight, with an increase in lamp light output.

An appreciable savings in initial cost as well as shipping charges can be anticipated as well as the added

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advantages of easier installation and handling.

As yet, no specifications have been issued by C.B.M.; however, these have been anticipated and plans are to submit this unit for certification as soon as possible. The unit now carries UL approval.

For additional data, ask for item 5003, using the return card below.

Briegel adds insulated throat indenter connector

RED THROAT B-M 21 B, a new insulated throat indenter type connector for thin wall tubing, has been announced by the Briegel Method Tool Co., Galva, Ill.

This entirely new connector has a permanent locked-in red plastic bushing that not only covers the entire inside area of the throat but also insures a smooth, burr-free raceway for easy fishing. The smooth, rounded lip of this red plastic bushing protrudes slightly beyond the threads of the connector, which not only protects threads from damage due to impact, but also eliminates shorts and grounds caused by wear in wire insulation due to vibration where wires leave raceway.

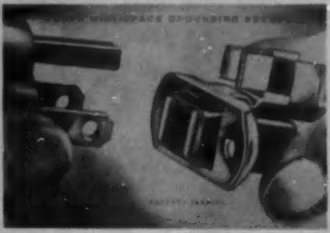
The new Red Throat B-M 21 B connector, like all other B-M fittings, is UL approved as concrete-tight.

For additional data, ask for item 5004, using the return card below.

Alden adds miniature 3-wire parallel slot

ALDEN PRODUCTS Co., 117 N. Main St., Brockton, Mass., has designed a tiny, three-wire Mini-spACe outlet for the original equipment manufacturer who supplies convenience outlets for power takeoffs as part of his equipment.

Whereas the conventional receptacle designed to accommodate the three-prong plug layout has called for putting the third contact into a molded insulating body that takes extra space and is rather costly, the Alden three-wire, parallel slot, grounding type receptacle uses a unique adapter plate to provide the third contact.



This adapter plate simply slips over the standard Alden Mini-spACe outlets. This adds only a few pennies to the cost and takes no more space than is generally used with conventional two-contact, parallel slot, a-c outlets.

For additional data, ask for item 5005, using the return card below.

Appleton connectors simplify insallation

APPLETON ELECTRIC Co., 1701 Wellington Ave., Chicago 13, Ill., has released details of their new "M. I." Series Connectors which greatly simplify the installation of the newly-introduced Safety m. i. (Mineral Insulated) Cable.

Unlike other connectors for Mineral Insulated Cable, the new Appleton units require no paste or compound to achieve a proper seal on the cable end, using instead a Neoprene "button" that is locked tight against the cable end by the simple expedient of tightening a nut. Appleton "M. I." Connectors preserve the features of Mineral Insulated Cable installations — non-inflammable, rugged, perfect ground, flexible, neat, compact. "M. I." installations resist heat, condensation, moisture, oils, acid fumes, corrosion, etc.

Installation time and labor costs are reduced because there are fewer components to assemble. The Style 1 Connector for threaded conduit hubs consists of only three brass parts and the Style 2 Connector for use in knockouts of steel junction boxes has only one basic component.

The new Appleton "M. I." Series Connectors are now available for use with Safety Mineral Insulated Cable ranging from size 16 to size 10, two conductor to four conductor.

For additional data, ask for item 5006, using the return card below.

Circuit breaker device for large appliance loads

A NEW STAB-LOK circuit breaker device, the AB-192, designed for homes with an air conditioning unit or an extra large kitchen range is now being produced by Federal Pacific Electric Co., 50 Paris St., Newark, N. J.

The AB-192 is designed particularly for applications where a large double-oven range of very high kilowatt consumption requires main circuit breakers greater than 50 amperes or where large single phase compressors are being used for air conditioning.

The AB-192 features a sequence bussed branch panel making it possible to use ten single pole or five double pole branch circuit breakers,

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controlled by one 50 amp. main breaker. Four additional 50 amp. main breakers may be used for major appliances such as dryers or other high wattage loads that can be served with a 3 wire circuit. By using a split-bus, the breakers in the lower compartment are in parallel with the 100 amp. breaker in the top section. The main lugs to which the line is attached have a capacity of 200 amperes.

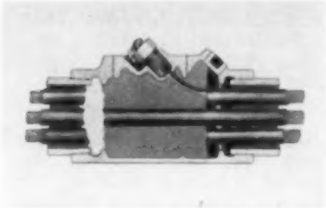
The new AB-192 stab-lok circuit breaker device has six operating handles to disconnect service, designed in conformance with the National Electrical Code. Completely wired, the device is constructed to fit between studs for easy installation.

For additional data, ask for item 5007, *using the card on page* 33.

C-H conduit fitting guards against failure

BY SEALING vertical runs of conduits, a new explosion-proof sealing conduit fitting (type EYD), introduced by Crouse-Hinds Co., Wolf and 7th North Sts., Syracuse, N. Y., guards against insulation failure caused by the accumulation of water.

Similar in function to type EZD sealing condulets, but without the removable inspection cover, the conduit fitting is more economical to use and available in larger hub sizes. Hub sizes range from ½ to 6 inches in two different styles. One-half, ¾ and 1-inch sizes have one opening for damming and filling and 1-¼ to 6-inch sizes have separate damming and filling openings. To drain water continuously, the fitting is equipped with an ECD drain.



For additional data, ask for item 5008, *using the card on page* 33.

Chase announces new plastic electrical tape

A NEW PLASTIC electrical tape has been announced by Chase & Sons, Inc., Randolph, Mass. Listed by Underwriters' Laboratories, Inc., this new tape is .007 inch thick, with a dielectric strength of 1000 volts per mil of thickness average. Its tensile strength is 20 pounds per inch in width, minimum; stretch is 150 per cent minimum, and adhesion to high polished surfaces is 30 ounces per inch width.

Chase Plastic electrical tape is packed in 10 roll dispenser cartons, ¾ inches wide by 20 feet per roll; or in individual tins, ¾ inches wide by 60 feet per roll.

For additional data, ask for item 5009, *using the card on page* 33.

Split bolt connector has strength of steel

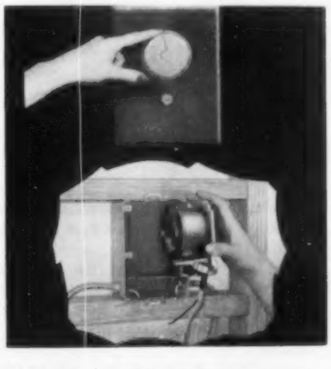
ANNOUNCEMENT has been made of the introduction of the Dosson "F", a new split bolt connector, by the Dossert Manufacturing Corp., 249 Huron St., Brooklyn 22, N. Y.

This new connector is a completely coldformed service connector, possessing the equivalent strength of mild steels.

For additional data, ask for item 5010, *using the card on page* 33.

Variable light control announced by Superior

A NEW CONCEPT in home lighting is variable light control, a way to regulate the amount of light by merely turning a dial. Until now lighting in the home was a matter of "on" or "off"—either full brightness or complete darkness. The new device, called "Luxtrol," makes it possible to graduate lights to suit individual moods and give the perfect light for every occasion. The manufacturer is Superior Electric Co., Bristol, Conn.



In addition to installations in homes, Luxtrol is being introduced for use in churches, hotel rooms, restaurants and cocktail lounges, small auditoriums, offices, stores and show windows. It operates both incandescent and fluorescent lighting.

The unit is about as easy to install as the usual on-and-off switch and each unit can handle any number or combination of lamps up to a load of 360 watts. The mechanism is a variable autotransformer operating from a 120 volt a-c source. Unlike resistance type dimmer controls that dissipate watts in the form of heat, Luxtrol utilizes only the amount of current necessary to obtain the desired illumination and therefore remains cool and economical. It is UL-approved.

For additional data, ask for item 5011, *using the card on page* 33.

Leviton adds 3-wire U grounding devices

A NEW and complete line of three-wire U grounding devices has been added to the line of wiring devices manufactured by Leviton Manufacturing Co., Brooklyn 22, N. Y. These new three-wire U grounding type receptacles, caps and cord connectors are for use in accordance with the new rulings by the National Electrical Code and Underwriters' Laboratories, Inc.

Caps are available in rubber (with or without cord grip) with U grounding prong and parallel blades (rated 125V), or with tandem blades (rated 250V). Also phenolic caps and armored caps with cord grips in both parallel and tandem type blades.

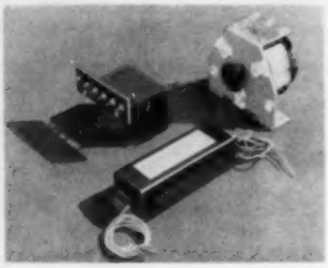
These new Leviton U grounding type devices are built to meet UL specifications and are rated 15 amp.

For additional data, ask for item 5012, *using the card on page* 33.

Ward Leonard offers new dimming system

A SIMPLE, wide range, low cost system for dimming hot cathode fluorescent lamps has been announced by Ward Leonard Electric Co., Mount Vernon, N. Y. This new development is especially recommended for the control of fluorescent cove lighting, luminous ceiling and multiple lamp fixtures.

The components in Ward Leonard's dimming system include: an auto-transformer dimmer and auxiliary transformer for one or more lamps, and a specially designed ballast (one required for each lamp). In operation the lamp cathode temperature is maintained over entire dimming range while the dimmer controls the arc current and consequently the light output. A special circuit within the ballast pulses the voltage at low intensity and insures instant starting at any point in the dimming range.

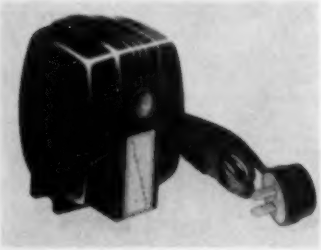


Ward Leonard's new system is designed for operation on a 120 V., 60 Cy., 2-wire line to dimmer. Ballasts and dimmers are available for rapid start or standard 40 watt T-12 lamps. Dimmers can be equipped with Motorlite or Regulite control for remote operation.

For additional data, ask for item 5013, using the card on page 33.

Switch automatically turns on house lights

Announcement has been made by the Fisher-Pierce Co., Inc., 63 Pearl St., S. Braintree, Boston 85, Mass., of a new light control device for homes that works automatically when darkness comes. Called the Nitelighter, it turns on hall, enclosed porch or living room lights the moment darkness comes, protecting the home while the owner is away and affording a lighted home upon return.



The Nitelighter is placed on a table or mounted on the wall with its photoelectronic light-sensitive "eye" pointing toward a window. The lamp to be controlled is plugged into the Nitelighter plug fixture. When it gets dark outside, the Nitelighter will automatically turn the light on and it will stay on until daylight returns. It turns lights on at different times each night, depending on what time darkness comes. This variation, recommended by insurance companies, fools prowlers who watch for signs of an empty house.

The Nitelighter is also ideal for controlling lights such as: enclosed porches, outdoor lighting, playrooms, store windows, electric signs, offices, hospital corridors, roadside telephones, poultry houses, stairways, hallways, garages, factory yards—wherever automatic lighting provides convenience or safety.

The unit is compact, and is put into operation simply by plugging the cord into any 110 volt 60 cycle a-c outlet. An eight foot cord set with adaptor plug and a bracket for flat surface mounting are included. Fully guaranteed, it will control lamps up to 300 watts and is designed for interior use.

For additional data, ask for item 5014, using the card on page 33.

G-E announces new residential load center

A new 12-circuit load center with a 100-ampere main breaker wired into the box has been announced by the Trumbull Components Dept., General Electric Co., Plainville, Conn.

Suitable for service equipment, the new load center encloses in a single unit both the main disconnect breaker and the branch circuit breakers. This "combination" design eliminates the need for a separate main entrance switch.

Typical applications for the new unit include homes, shops, garages, and commercial and office buildings.

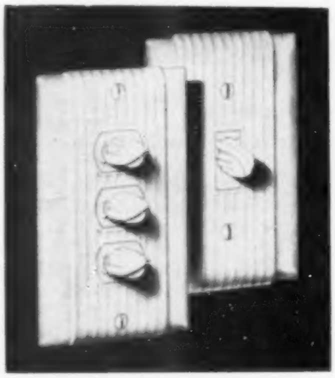
A front with full length door is standard equipment on the new load center. And to make the device completely tamper-proof, an optional lock kit for field installation is available.

Rated for use with 100-ampere, 120/240-volt a-c single-phase three-wire service, the new 12-circuit load center provides complete circuit protection for today's adequately wired home, according to G-E engineers.

For additional data, ask for item 5015, using the card on page 33.

Pass & Seymour adds new Roto-Glo switch

The new Roto-Glo switches recently placed on the market by Pass & Seymour, Inc., Solvay Sta., Syracuse 9, N. Y., are truly modern light switches. They combine functional design with feather-quiet operation, and they glow in the dark. A moment's exposure to any light source and Roto-Glo's luminous knob will pin-point switch location all night long. Roto-Glo switches turn on just like a radio or television receiver.



The entirely new Roto-Glo mechanism prevents vibration and noise, and these quiet switches may be installed in any position. For use on a-c circuits, these switches can be used to full current rating on fluorescent and incandescent lighting loads, and on motors when the full load current is not more than 80 per cent of rating of switch. Screwless terminals make wiring quick and easy.

Available in P&S Despard type for combination wiring, or conventional strap type.

For additional data, ask for item 5016, using the card on page 33.

'Static preventive' clamps added by Gedney Electric

Gedney Electric Co., RKO Bldg., Radio City, New York 20, N. Y., has announced an addition to its rapidly expanding fittings line—the "Static Preventive" ground clamp. These clamps are made of malleable iron, hot dip galvanized in all standard sizes from ½ to 8 inches.

Clamps are furnished with Allen Holo-Krome screws which take a firm bite into pipe or conduit, thereby insuring positive grounding. All screws are secured with lockwashers.

Clamp terminals will accommodate 8, 6 or 4 bare or insulated ground wire.

Special hubs are available for use with rigid conduit, EMT and armored ground wire.

Gedney "Static Preventive" Ground Clamps are ideally suited for use in steel, chemical, paper and all other industries where static electricity has been a problem.

For additional data, ask for item 5017, *using the card on page* 33.

Bryant switching system operates on low voltage

A MODERN METHOD of controlling electrical circuits called Multi-Control, has been announced by the Bryant Electric Co., Box D, Barnum Station, Bridgeport 2, Conn. Through the use of small relays, which are actuated by low voltage switches, lighting and appliance circuits may be controlled from one or any number of desired locations. Another outstanding feature, not available in conventional wiring systems, is the Master Switch Control. One or more Master Switches may be installed at strategic locations for the control of any number of circuits.

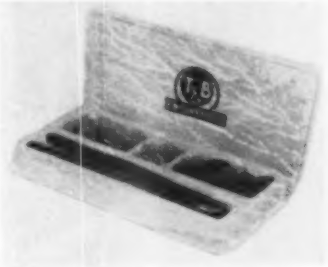
Because this switching system operates on low voltage, it is safer and the use of less costly switching conductors is achieved. Aside from the economy of installation, this system provides the flexibility and versatility not afforded with conventional switching systems.

Multi-Control may be used as an entirely new system or to supplement existing wiring.

For additional data, ask for item 5018, *using the card on page* 33.

T&B wire joint kit features useful box

INTRODUCTION of a wire joint kit packaged in a specially designed plastic box and containing the new PT-66M pigtail connectors and Sta-kon Plus pliers is announced by its manufacturer, the Thomas & Betts Co., Butler St., Elizabeth 1, N. J. The box's hinged cover is a clear plastic window that reveals the contents at a glance; when they are used up, the compartmented box serves as a convenient container for loose parts and other assorted articles. T & B developed the kit particularly for electrical contractors and maintenance men.

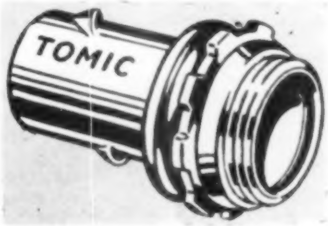


The kit's new PT-66M pigtail connector accommodates combinations of solid or stranded conductors up to three No. 12 AWG maximum. It provides a very compact joint and is installed rapidly with standard Sta-kon tools. UL approved, the connector has a plastic insulating cap that permits quick visual inspection of the joint through the brightly-colored, transparent plastic.

For additional data, ask for item 5019, *using the card on page* 33.

Tomic conduit connector has many unique features

INTRODUCTION of a new ½-inch flexible steel conduit connector with many features of interest to the trade has been announced by Tomic Sales & Engineering Co., 20000 Sherwood Ave., Detroit 34, Mich., manufacturers of Thinwall connectors, couplings and other electrical products.



The new connector is easy to install, screws inside flexible conduit, has a smooth interior and rounded throat to prevent snagging of fish tape and damage to insulation. It is of strong steel construction and will not shake loose.

For additional data, ask for item 5020, *using the card on page* 33.

Behr-Manning introduces new line of plastic tape

A NEW LINE of plastic electrical tape has been announced by Behr-Manning Corp., Troy, N. Y. Fully qualified for Underwriters' listing, the line consists of three items: Behr-cat 507, 510 and 520 which are seven, 10 and 20 mils thick respectively, each available in a wide range of widths.

The high dielectric strength of the vinyl plastic backing — over 1,000 volts per mil of thickness — helps account for the tapes' superiority over combinations of rubber and friction tapes for electrical applications. Fewer wraps of plastic tape are required for the same electrical resistance. The result is economy, not only of tape consumed, but also of time and labor.

All three thicknesses are available in 36-yard rolls in a wide range of widths. Behr-cat No. 507 is also available in handy, job-size rolls ¾ inch x 20 feet, packaged one dozen to an easy-dispensing tube, and in metal containers, individually packaged with ¾ inch x 66 foot rolls.

For additional data, ask for item 5021, *using the card on page* 33.

Viking adds line of one hole straps

ANNOUNCEMENT of a new line of Viking one hole straps has been made by W. W. Cross & Co., Jaffrey, N. H., through their general sales agents, J. J. Walsh and Co., P. O. Box 325, Greenville, R. I.

The new straps are for use on EMT and rigid conduit, and feature the snap-on principle. These straps are so designed that when they are forced over the conduit they will not fall off, thus leaving hands free for faster and easier running of conduit.

The new Viking Snap-On straps are of heavy gauge steel, electro zinc galvanized after forming, and can be fastened by welding or by powder guns.

For additional data, ask for item 5022, *using the card on page* 33.

Cold Cathode develops 400 cycle transformer

A NEW 400 CYCLE cold cathode transformer has been announced by the Cold Cathode Lighting Corp., 42-40 27th St., Long Island City, N. Y. The new transformer has been tested to operate in low temperature ranges.

The transformer will effectively operate two or four T/12 1½-inch diameter eight-foot cold cathode lamps. This transformer solves the problem of operating fluorescent type lamps at 400 cycles under low temperature conditions.

In combination with the new 400 cycle transformer, the cold cathode lamps can be used for minimum maintenance and instant starting.

The transformers are being made commercially as hermetically sealed units.

For additional data, ask for item 5023, using the card on page 33.

Pyle-National offers duplex receptacle cover

A NEW DUPLEX attachment plug receptacle cover for FS and FD Pylets has been announced by the Pyle-National Co., 1354 N. Kostner Ave., Chicago 51, Ill.

This new product, of cadmium plated ferrous alloy, is weatherproof and rain-tight. The oil-resistant rubber gasket is secured in the center by a metal plate leaving the entire perimeter free to float in the recessed groove designed to compensate for any irregularities in the cover seating surface.

The door hinge spring and the tension retaining pin are fully enclosed for protection against the elements and as a safety factor to avoid exposed sharp edges.

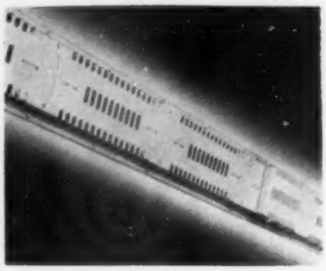
For additional data, ask for item 5024, using the card on page 33.

Roller-Smith introduces improved busway, Uni-Bus

A NEW CONTRIBUTION toward improved low voltage feeder and plug-in busway systems, Uni-Bus, has been introduced by Roller-Smith Corp., 1000 Eighth Ave., Bethlehem, Pa.

Available in ratings from 225 to 775 amperes, 600 volt, 2, 3 and 4 pole types, the Uni-Bus system features totally new concepts in flexibility, safety and efficiency for the distribution of electric power in industrial and commercial construction.

Major design and construction features are: A single size ventilated steel enclosure accommodates all current carrying capacities. Construction details are identical for both feeder and plug-in types. A unique duo-circuit arrangement offers low-reactance characteristics for both types of bus. Weight savings are claimed up to 40 per cent. Either horizontal or vertical installations are possible. Flexible connectors serve as elbows, offsets and expansion fittings. Uni-Bus plug may be isolated from bus by safety slide and utilization circuit is energized through primary and secondary contacts in the plug.



For additional data, ask for item 5025, using the card on page 33.

Ilsco introduces CAN neutral bar

A Can Neutral Bar, compactly built, neat in appearance and possessing many unique features, has been introduced by Ilsco Copper Tube and Products, Inc., Mariemont Ave., Cincinnati 27, Ohio.

The new unit is reported to save many minutes of time as compared to the old style washer head screw neutral plates commonly used. By forging the circuit bars into the main line connectors at a 20 degree angle for easy wire insertion of every branch circuit wire, CAN Neutral Bars have been developed into units of unusual strength and adaptability.

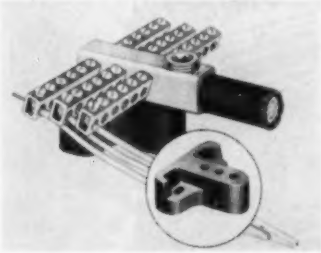


Illustration shows CAN Neutral Bar on a plastic block to be used for mounting. It is sold with or without the mounting block.

For additional data, ask for item 5026, using the card on page 33.

Conductive lubricant offered by Cool Amp

Conducto-Lube is a highly conductive top-grade lubricant designed for use in conducting hinge joint switches. It is ideal for high-speed air blast breakers where a lubricant is essential. It is manufactured by the Cool Amp Co., 8603 S. W. 17th Ave., Portland 19, Oregon, manufacturers of a popular silver plating powder.

This illustration shows conductivity by a low voltage test in a jar of Conducto-Lube, with the current illuminating the globe. This product's lubricative qualities can be used on knife blade switches to prevent their "balling up" and "freezing." Conducto-Lube's conductivity will reduce resistance and heating.

For additional data, ask for item 5027, using the card on page 33.

Harvey Hubbell outlet designed for appliances

A NEW 30-AMPERE, three-wire, surface type power outlet designed for driers, air conditioners, etc., is announced by Harvey Hubbell, Inc., Bridgeport, Conn.

Identified as Catalog No. 9390, the unit features an L-shaped slot which positively prevents any chance of interchangeability with 50-ampere units.

POWER OUTLET

The new outlet is available in both black and ivory. Large binding screw terminals take up to No. 8 wire. Grounding clamp connects with ground strap on cap to provide secure ground connection.

For additional data, ask for item 5028, using the card on page 33.

Durall-T now approved as underground feeder

A LONG-TIME FAVORITE for house wiring and fully approved as Types NM and NMC non-metallic-sheathed cable, Anaconda's versatile Durall-T, a thermoplastic-insulated and jacketed cable, now is approved as Type UF, for much more severe service, under the new underground-feeder classification of the 1953 National Electrical Code.

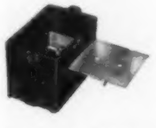
Manufactured by Anaconda Wire & Cable Co., 25 Broadway, New York, N. Y., Durall-T has figured most prominently recently in barn-wiring applications for obvious reasons: It is highly resistant to chemicals, moisture, corrosion, fungi and mechanical damage and similar "harsh-atmosphere" locations, all of which abound on farms. It is extremely pliable, tough, easy to install.

Now, it is approved for use in underground circuits on the load side of the meter; in addition, it can be installed in inside and outside walls of masonry block or tile or imbedded in plaster. Durall-T is flame resistant, won't burn; available in two- and three-conductor makeup.

For additional data, ask for item 5029, *using the card on page* 33.

Bracket switch box reduces wiring time

A NEW FRONT MOUNTING, switch box, No. 9000-F, has been announced by the Union Insulating Co., Inc., P. O. Box 351, Parkersburg, W. Va. The new box features a "plaster-seal" which keeps plaster from device screw holes. A thin molded flash is easily removed with a screw driver.



The front mounting bracket instantly locates box for depth with convenient front of stud nailing. One nail driven in the face of the stud mounts box rigidly. Knockouts are removed quickly and clean with screw driver blade.

Further information on the UL approved No. 9000-F is available from the company.

For additional data, ask for item 5030, *using the card on page* 33.

All Shawmut fuses are now silver-plated

LIKE ALL high quality switch gear all Shawmut Fuse contacts are now silver-plated, according to a recent announcement by the Chase-Shawmut Co., Newburyport, Mass. The silver-plating of contact parts prevents the formation of non-conducting copper oxide, thereby eliminating the heating problems it causes. Shawmut One-Time fuses, Time-Delay Renewable fuses, Trionic Dual Element fuses and Amp-Trap Current Limiting Devices are available with silver-plated contacts at no extra cost.

Corrosive fumes and high temperatures may also oxidize silver, but silver oxide, unlike copper oxide, is a good conductor. Shawmut S-P fuses installed in panel boards, switches, motor starters, busways, and other apparatus waste far less power in heat and reduce maintenance. This should prove of special benefit to steel mills, chemical plants, petroleum installations and utilities.

For additional data, ask for item 5031, *using the card on page* 33.

Rome Cable announces packaged copper wire

BARE COPPER WIRE in handy size coil put-up, packed in individual cartons, has been announced by the Rome Cable Corp., Rome, N. Y.

Available in sizes 14 Awg through 4 Awg solid and 8 Awg through 4 Awg stranded, this new Rome bare wire put-up benefits electrical wholesaler and contractor alike. Carton packaging simplifies shipping and warehousing and in addition simplifies stocking for the wholesaler as he no longer has to cut short lengths from long stock lengths on reels or coils.

ROME
BARE COPPER WIRE
CABLE
ROME CABLE CORPORATION

It also provides a handy, workable package for the contractor and eliminates loose, broken coils and unusable short lengths.

Rome's new and convenient carton packaged bare wire is ideally suited for ground wire installations.

For additional data, ask for item 5032, *using the card on page* 33.

Bronco control cable features size variety

NEW FLEXIBLE control cables with from 5 to 24 conductors are now being manufactured in sizes 18 through 10 A. W. G. by Western Insulated Wire Co., Los Angeles 58, Calif.

Conductors in the new Bronco 60 Certified Control Cable are made of pure, annealed electrolytic copper for maximum flexibility and flex-life. Singles are coded with permanent colors.

The outer protecting jacket is certified by a registered professional engineer to contain not less than 60 per cent new Neoprene by weight—equivalent to 65.46 per cent by volume. This provides maximum protection against virtually all factors in the industrial environment which attack rubber. The jacket will not support combustion, and is branded every two feet.

The name, type, size, number of conductors, rated voltage, and "P116BM" (on sizes 14 and larger)—flameproof approval number of the U. S. and Pennsylvania Bureaus of Mines—are vulcanized permanently into the protecting sheath.

For additional data, ask for item 5033, *using the card on page* 33.

Cutler-Hammer offers raintight conduit hub

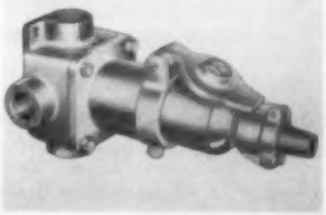
A NEW INTERCHANGEABLE conduit hub for raintight equipment has been announced by Cutler-Hammer, Inc., 233 North 12th St., Milwaukee, Wis. The device is important in that it incorporates a new idea in design of raintight enclosures. Being interchangeable, the hubs will enable distributors and dealers to have more stock flexibility without having a high inventory on each item.

The raintight NEMA 3 enclosures, with 200 ampere size capacities, include safety switches, Unit Breakers and service control equipment. They have a round opening in the top end wall which is covered by a blank plate with a gasket. The blank plate is fastened in place with bolts and can be replaced in the field with any one of the interchangeable type hubs, in sizes ¾ inch to two inches.

For additional data, ask for item 5034, *using the card on page* 33.

Killark adds explosion-proof plugs, receptacles

KILLARK ELECTRIC Manufacturing Co., Vandeventer and Easton Avenues, St. Louis 13, Mo., manufacturers of conduit fittings, has announced the addition of the new KILARC explosion-proof plugs and receptacles to its line.



Designed for safety first in the electrical connection of portable equipment, the new fittings are non-sparking. A plug striking against the receptacle can't spark, and a safety time delay feature prevents arcing even when improperly sealed. The unit is UL approved and exceeds safety tests by a wide margin.

These units are lightweight, made of smooth, durable Killark Alumalloy. The rugged construction is highly resistant to hard, rough usage. They are rust and corrosion proof, unaffected by moisture, and various industrial atmospheres.

The KILARC explosion - proof plugs and receptacles are available in many styles and sizes to fit various boxes. Made in 15, 30, 60, 100 amp. (100 amp weatherproof).

For additional data, ask for item 5035, using the card on page 33.

Royal Electric develops new 3-wire receptacle

A NEW 3-WIRE, 15 amp—125 V weatherproof receptacle, with a U-shaped grounding slot, has been developed by Royal Electric Co., Inc., 95 Grand Ave., Pawtucket, R. I. The new UL listed receptacle, is made especially for the new 3-wire grounding male plugs with round or U-shaped grounding pin, now required on portable tools under present NEMA and UL standards.

The new receptacle will also accommodate all but the largest diameter 2-wire, 15 amp—125 V caps; and is suitable for either metallic or non-metallic systems.

The mounting plate and screw cover are .040 brass with aluminum finish; complete with a weatherproof mat and mounting screws.

For additional data, ask for item 5036, using the card on page 33.

Rodale adds heavy-duty extension power blocks

A SERIES of ruggedly-constructed heavy-duty extension cord power blocks designed to bring multiple convenience outlets within easy reach of all applications is now being produced by the Rodale Manufacturing Co., Inc., Emmaus, Pa. Each unit is available in lengths of six, 12, 25, and 50 foot versions, completely wired for immediate use, and constructed of heavy cast aluminum. Features of these new devices include an interior strain relief anchor insuring a firm cable connection under all stresses, and a rubber entrance grommet protecting the cable against strain.

Three convenience outlets are provided on the first three power blocks in the series, all wired with No. 16-3 Type S wire, and completely UL-approved. Cat. No. 378 contains one duplex U-blade receptacle and one single U-blade receptacle; Cat. No. 379 contains one three-wire Turn Tyte duplex receptacle and one two-wire Turn Tyte receptacle; Cat. No. 380 consists of one three-wire Turn Tyte duplex receptacle and one three-wire straight blade single receptacle.

To give a greater versatility in job performance, seven power blocks are also equipped with a special hook for convenience where the power source must be used from an overhead position, such as in the aircraft, garage, and maintenance fields.

For additional data, ask for item 5037, using the card on page 33.

Westinghouse introduces new adjustable fitting

AN ADJUSTABLE straight length of bus duct recently introduced by Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa., can be lengthened or shortened on the job by as much as six inches. The new fitting is designed to facilitate the layout and installation of bus duct by decreasing the precision required for good results. Greater tolerances permit flexibility in placement of fixed apparatus and simplify connections to apparatus already in place.

The standard five-foot length for plug-in bus duct is continuously adjustable from four feet, six inches to five feet, six inches; the six-foot fitting for low-impedance indoor bus duct can be extended from five feet, six inches to six feet, six inches. Fittings are available in copper or aluminum for all ratings of plug-in duct and for all indoor low-impedance duct having two bars per phase.

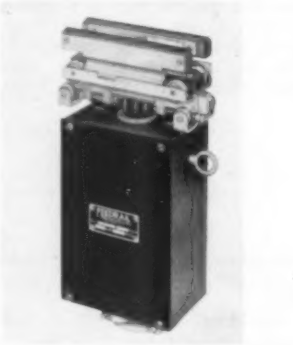
Plug-in duct fittings are rated up to 1500 amperes in copper, 1000 amperes in aluminum. In ventilated enclosures, indoor low-impedance copper fittings are rated to 3000 amperes; when totally enclosed, to 2250 amperes. Aluminum fittings are rated to 1600 amperes. Both fittings are rated at 600 volts for two or three-wire units. Four wire units are rated at 277/480 volts and are available with either half or full neutral.

For additional data, ask for item 5038, using the card on page 33.

New 100 ampere trolleys announced by Feedrail

Two NEW special service trolleys rated at 100 amperes—equal to the full current carrying capacity of the Feedrail "100" track—are now available from Feedrail Corp., 125 Barclay St., New York 7, N. Y.

These two or three pole single unit trolleys combine all the essential features of the standard trolley series with the special requirement of high power full rated take-off.



The chassis is of one-piece heavy gauge steel. Totally enclosed ball bearing support wheels, horizontally mounted ball bearing guide wheels, and self-lubricating undercarriage wheels assure perfect alignment of the trolleys in the Feedrail "100" track. A polarizing tab prevents insertion of the trolley in improper polarity.

For additional data, ask for item 5039, using the card on page 33.

Bishop electrical tape is pressure sensitive

A NEW PRESSURE sensitive vinyl electrical tape has been developed by Bishop Manufacturing Corp., 44 Factory St., Cedar Grove, N. J., for general purpose applications where complete electrical and mechanical protection is required.

The new tape features an improved method of bonding the adhesive to the vinyl that prevents transfer, eliminating objectionable tackiness on the backing and giving greater adhesive strength. This makes it an ideal tape for use on hard-to-get-at installation such as fixture openings, junction boxes and conduits.

This new vinyl tape is available in two thicknesses of seven and 10 mils. The dielectric strength of the seven mil tape is better than 10,000 volts. Dielectric strength of the 10 mil tape is in excess of 13,000 volts. Insulation resistance of both types is over 200,000 megohms. These new Bishop vinyl tapes are available in 20 ft., 66 ft., and 36 yd. roll lengths and many widths to meet a variety of service requirements.

For additional data, ask for item 5040, *using the card on page* 33.

M&W offers packaged service mast fittings

COMPLETE PACKAGE units for service entrance mast installations have been introduced by the M. & W. Electric Manufacturing Co., East Palestine, Ohio.

Excluding conduit, each package contains threadless fittings for mast top and bottom, galvanized roof flashing, aluminum storm collar, conduit support ring and bolt (or pipe strap and lag screws), and wire holder with iron ring.

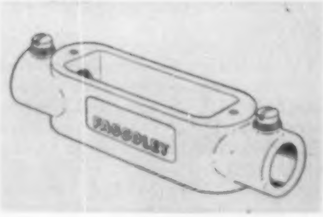
Packaged fittings for either two-inch or 2½-inch conduit are available, conforming to rigid specifications for mast-type installations.

For additional data, ask for item 5041, *using the card on page* 33.

Set-Screw Fascolets for EMT announced

IMPORTANT IMPROVEMENTS in their new line of Set-Screw Fascolet fittings for EMT (Thin Wall) have been announced by the Fast-Lok Manufacturing Co., Ash St. at Bedford, Bridgeport 5, Conn. The fittings are made of die-cast, rust-proof, non-corrosive aluminum in sizes to take ½, ¾ and one-inch EMT, and are available in five different types. All standard covers will fit the comprehensize Fascolet line.

A brand new feature of these UL-approved Fast-Lok products is the addition of Jumbo-sized cadmium-plated, cup-point set-screws, together with husky lock-washers that guarantee no "backing-off" and insure a firm snug job. The positioning of Fascolet set-screws gives time-saving accessibility, as they always face the installer.



Set-Screw Fascolets need no EMT adapters and a screwdriver is the only tool required for installation.

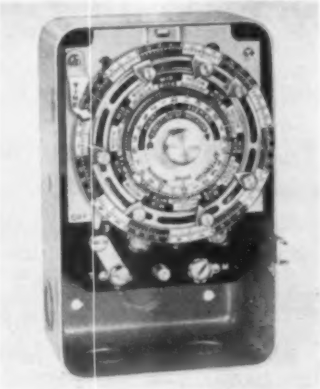
For additional data, ask for item 5042, *using the card on page* 33.

Paragon time switch noted for compactness

NEW FLEXIBILITY and compactness are combined in the revolutionary 3700 Series Time Switch introduced by Paragon Electric Co., Two Rivers, Wis.

The unit has been designed to provide automatic control for all makes of window air conditioners. The time switch "gets to the office early" and turns on the air conditioner before business hours. It also "stays late" to turn it off.

The seven-day dial allows for different settings for each day as well as Sunday and holiday cutout. The switch can also be manually operated without disturbing the sequence of automatic operation. The complete flexibility stops unnecessary air-conditioner operation.



Suitable for use on air-conditioning units up to and including one-ton capacity, the new 3700 Series is enclosed in a drawn steel case, finished in a neutral color to blend with modern decor. Designed to use existing cord set for easy installation. Furnished standard with 1 hp, D.P.S.T. contacts to comply with national and local codes. Size: 7-½ inches x 4-¾ inches x 3-⅝ inches.

For additional data, ask for item 5043, *using the card on page* 33.

K&H terminal lugs are available in six sizes

A SERIES of Universal Pressure Type Adjustable Terminal Lugs which are simple in design, rigid and strong, and easily and speedily installed, has been announced by Krueger & Hudepohl, Inc., 5 East Third St., Cincinnati 2, Ohio.

The lug body is well proportioned to withstand excessive use, with ample thread area. The unit makes a tenacious grip on stranded conductors, forcing contact with each wire in the strand, and thereby insuring the utmost in conductivity. Bottom of the tongue surface is ground. Threads are National Fine Thread, offering a maximum clamping pressure at low wrench torque—not susceptible to release under vibration.

K&H
616
750M-500M

Quality workmanship and materials are used in this lug series of six sizes, from No. 14 to 1,000,000 CM. The moisture resistant units are constructed of 85 per cent copper alloy.

For additional data, ask for item 5044, *using the card on page* 33.

Buchanan introduces new terminal block

A COMPLETELY NEW terminal block, the heavy-duty, sectional pres-SURE-block, has been introduced by Buchanan Electrical Products Corp., Hillside, N. J. The design of this new terminal block allows any number of circuit sections to be securely assembled into a compact 70 amp—750 volt sectional terminal block.

One-piece ruggedness of assembled circuit sections is achieved through pres-SURE-pin design of three integrally molded serrated pins which locate and secure each circuit section by mating with corresponding holes in the adjoining circuit section.

The pres-SURE-pin design thus permits limitless circuit sections to be assembled without the inherent disadvantages of conventional sectional blocks having accessory fastening hardware or loose fitting sections.

This pres-SURE-block design of interlocking surfaces has also solved the flashover and leakage problem common to many types of conventional terminal blocks.

For additional data, ask for item 5045, *using the card on page* 33.

Hoffman presents 15 metal panel enclosures

Fifteen standard sizes of NEMA 12 sheet metal panel enclosures (16 x 12 x 6 inches to 60 x 36 x 8 inches) have been introduced by Hoffman Engineering Corp., 1123 Tyler St., Anoka, Minn., to supplement its line of oil tight JIC electrical pull boxes and troughs.

These enclosures are constructed to be completely liquid tight. All seams are welded. There are no holes. The cover is gasketed with neoprene sponge. There are external mounting feet. The cover is hinged on one side with continuous type hinge. It is fastened to the box by means of external clamps.

There is a print holder on the inside of the cover. There is a removable mounting panel for mounting electrical equipment. The interior is finished with a baked white enamel and the outside with a prime coat.

For additional data, ask for item 5046, *using the card on page* 33.

Columbia-UF designed for corrosive locations

Columbia Cable & Electric Corp., 255 Chestnut St., Brooklyn 8, N. Y., manufacturers of cable, conduit, and building wire, announces production of Columbia-UF, underground feeder and branch circuit cable.

Columbia-UF is a specially designed, all thermoplastic cable tested and approved by Underwriters' Laboratories and recognized by the 1953 National Electric Code for use in wet, damp or corrosive locations. Columbia-UF is approved for direct earth burial in branch and feeder circuits when provided with overcurrent protection. It is highly resistant to acids, alkalis, lubricants, corrosive fumes and water. It is resistant to fungus, corrosion, and it will not support combustion.

Columbia-UF is available in single conductor, sizes 14 to 4 AWG, and in two and three conductor flat construction, sizes 14, 12 and 10 with and without ground wire.

Columbia-UF is used in barns, where chemical and corrosive fumes have a deteriorating effect on ordinary wiring. It is also used as underground feeder cable between houses, garages, factories and outdoor lightposts.

For additional data, ask for item 5047, *using the card on page* 33.

Holub introduces 'Do-It-All' kit

The "Do-It-All" Kit recently introduced by Holub Industries, Inc., Sycamore, Ill., contains 100 No. 12 x one-inch "Hi" Plastic Screw Anchors, 100 zinc plated sheet metal type screws and one ¼-inch Spiral Fluted Masonry Drill in a handy, transparent plastic box. After the contents are used the box comes in mighty handy as a container for dozens of small objects that are always getting misplaced.

"Hi" Plastic Anchors are made of Ethyl Cellulose, quality plastic for anchoring applications. They are unaffected by moisture, corrosion, heat or cold; will not rot, age or otherwise deteriorate. Their superior holding power has been proved through tests by the Pittsburgh Testing Laboratory.

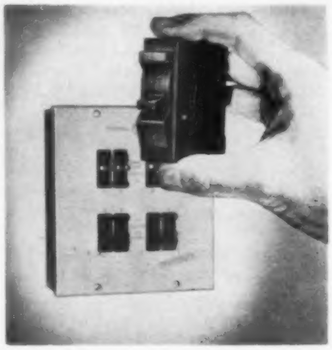
For additional data, ask for item 5048, *using the card on page* 33.

Trumbull breaker has trip indicating handle

The Trumbull Components Department of General Electric Co., Plainville, Conn., has announced the introduction of a new Type "R" circuit breaker for the residential construction market.

The Type "R" circuit breaker incorporates many features, including a positive action mechanism which enables the contacts to break instantly thereby protecting them from excessive burning and arcing.

In addition, Type "R" has a trip indicating handle. When a short circuit or an excessive overload trips the breaker, the handle moves to a mid position between On and Off. One glance at the load center quickly shows which breaker is tripped. The circuit is closed by moving the handle to Reset and then to On. Even if the handle is held on, trip free contacts will open under an excessive overload or short circuit. A new projecting guard protects the Type "R" handle.



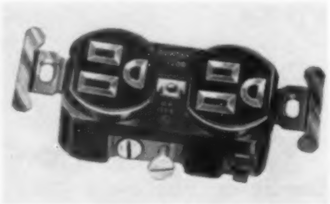
Straight-in wiring, plus a simple plug-in arrangement for easy mounting in a stab assembly provides easy installation.

A full line—15, 20, 30, 40 and 50 amperes, 120 volts ac, single pole Type "R" circuit breakers is available. These units are UL listed.

For additional data, ask for item 5049, *using the card on page* 33.

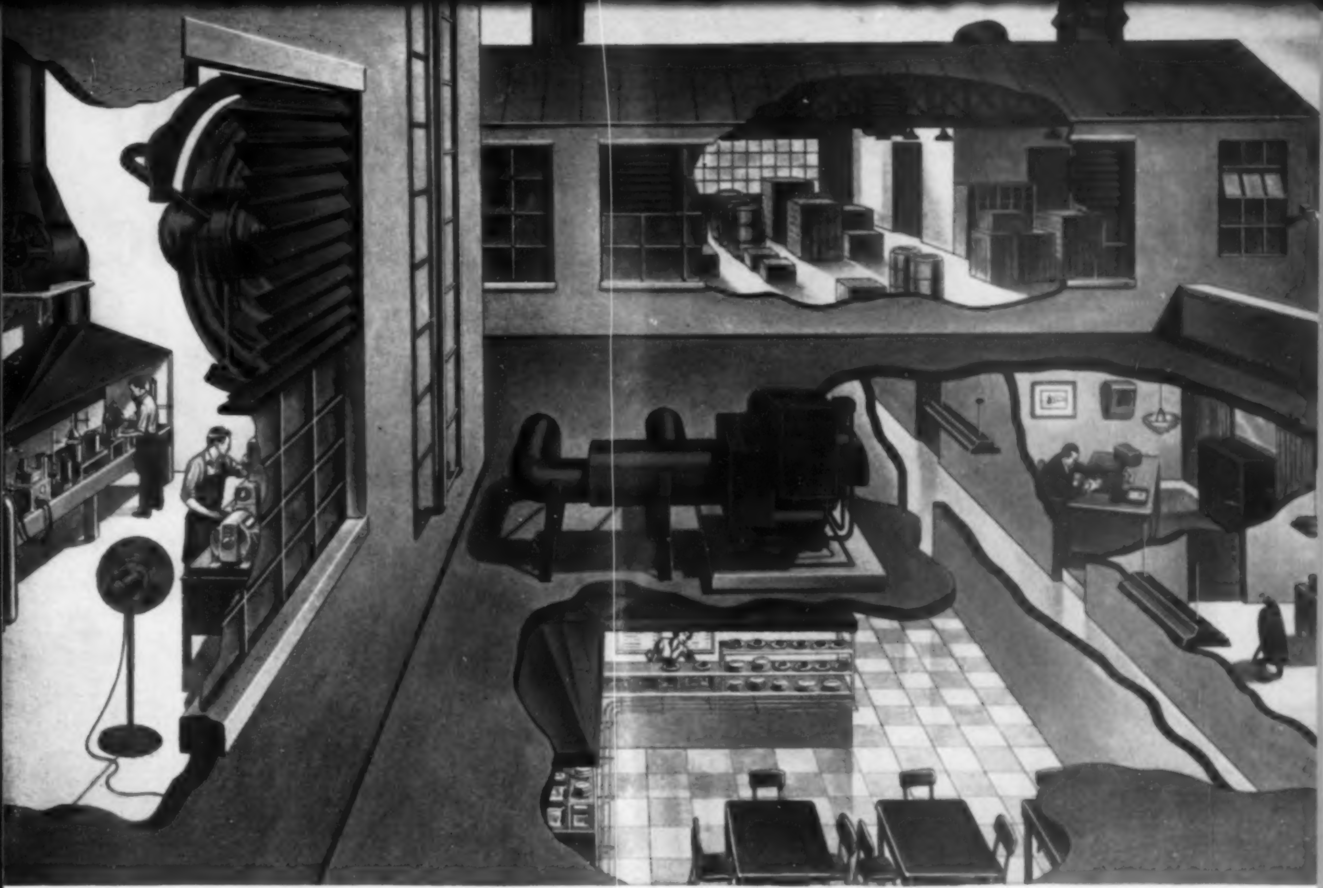
Slater Electric adds 'U' duplex receptacle

The addition of a residential grade "U" shaped grounding type duplex receptacle to their line of wiring devices has been announced by Slater Electric & Manufacturing Co., Inc., 56th St. and 37th Ave., Woodside, N. Y. It has a rating of 125 volts—15 amperes and meets NEMA and ASA standards.



The Slater No. 3200 features "channel-lock," which permits back or loop wiring. This receptacle can be used for appliances and power tools that require grounding.

Other features of this receptacle are: grounding of metallic system wiring is direct; grounding of nonmetallic systems is through a third wire acting as a grounding conductor; slots can accommodate two-wire regular and polarized caps; plaster ears; hexagonal green screw



NEED BETTER VENTILATION? Portable fans for spot cooling? Circulator and window fans for offices? Self-cooled propeller fans and universal blowers for large-volume circulation? There's a Graybar-distributed unit specially designed to provide all the cool, refreshing air you want. And it's as handy to you as your nearest Graybar office.

Extra profits out of the air...via GRAYBAR

ILG
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Catalog

Get your FREE copy of this fact-filled ILG Catalog – your guide to the best in ventilating equipment. It shows the entire line of ILG ventilating equipment, arranged to make it easy for you to select the unit that's exactly right for each installation. Pertinent data on operation, performance and installation specifications are also included. Write to the address below.

You can up your profits and, at the same time, increase production and lower costs for your customers with Graybar-planned ILG ventilating systems. Adequate ventilation equipment that removes fumes, dust, heat and stuffy air means better production all around. Check off these points and see what a big job fresh air can do.

1. **Increases man-hour production**
2. **Reduces material spoilage**
3. **Cuts worker fatigue**
4. **Reduces accidents**
5. **Lowers labor turnover**

Why not consider a free survey on your next job? Just call the Graybar office nearest you – we'll gladly work with you and your customer to find the best answer for his needs.

One thing that's good to remember, Graybar-distributed ILG fans and blowers are the best-designed and best-built units you can get. For that matter, Graybar is an all-inclusive source for *everything electrical* . . . over 100,000 quality items for wiring, lighting, communication, power, as well as ventilation. 520-75

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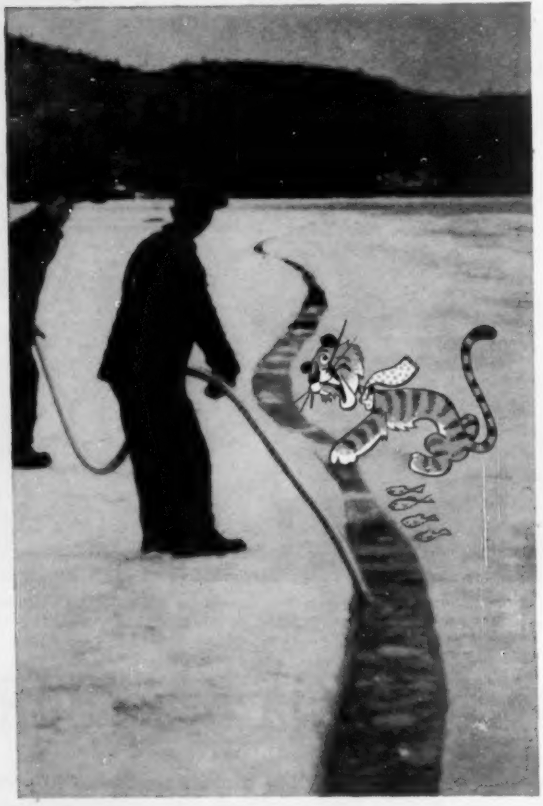
GraybaR ELECTRIC CO., INC.

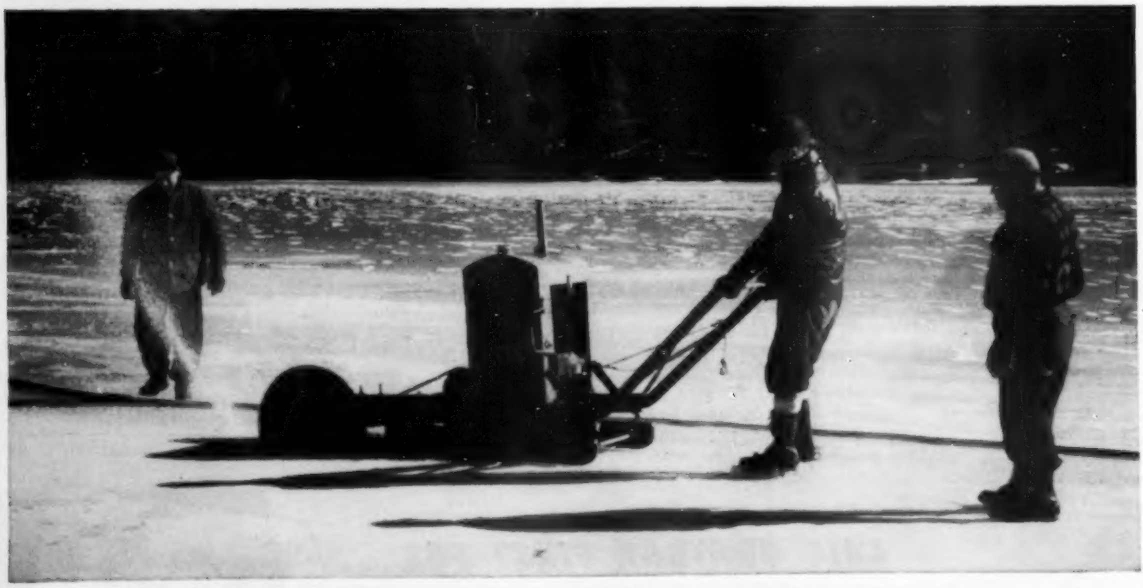
Power company saws through lays *Tiger Brand* Submarine



In she goes. Cable was orginally pulled across the lake with a jeep. The steel armor on cable took up the pulling strain.

Crew of men jockey the cable into position before cutting trench. Mr. Finch says, "We were amazed at the flexibility of the cable."

This is one of the two ice saws used for cutting the trench. It is gasoline powered, mounted on skids.



new customers

11 inches of hard ice . . . Cable without boats or barges

• The scene is Upper Saranac Lake, N. Y. Paul Smith's Electric Light & Power and Railroad Company wanted to lay a 2000-foot continuous length of Tiger Brand Submarine Cable under water. Ordinarily this would require expensive boats, barges and crews.

But Raleigh Finch, General Superintendent, decided to wait for a big freeze, saw a slot in the ice, then drop the cable to the bottom. The cable was so flexible, that it only took 15 minutes to unroll the entire 2000 feet onto the ice. The picture captions explain how the job was done.

The cable involved is 2-conductor, 5000V, #4 AWG, steel armored, rubber insulated, non-leaded. It was selected because of its flexibility, light weight and low cost. The cable joins a previous Tiger Brand Submarine Cable that was laid in 1932. According to Mr. Finch, "We haven't had a service failure in that cable since it was laid 24 years ago. In fact, we've never had a piece of Tiger Brand fail, in the 30 years that we've been using it."

Any user of electrical cable can have this same kind of reliable performance. Just switch to Tiger Brand.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AMERICAN STEEL AND WIRE DIVISION
USS
TIGER BRAND
ELECTRICAL WIRE AND CABLE
UNITED STATES STEEL

A STANDARD TIGER BRAND CABLE FOR EVERY SPECIAL JOB!

- asbestos wire and cable
- mold cured portable cord
- aerial, underground and submarine cable
- shovel & dredge cable
- paper & varnished cambric cable
- machine tool & building wire
- special purpose wire & cable

USS Tiger Brand **ELECTRICAL WIRE & CABLE** USS

UNITED STATES STEEL

new customers new profits with 2 new progress lines

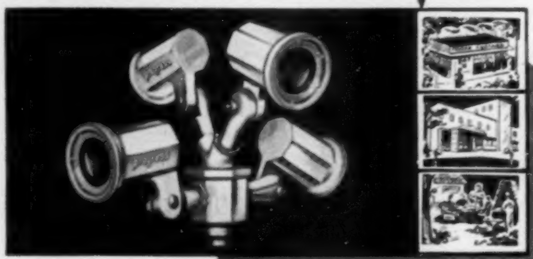
Suburban Lites

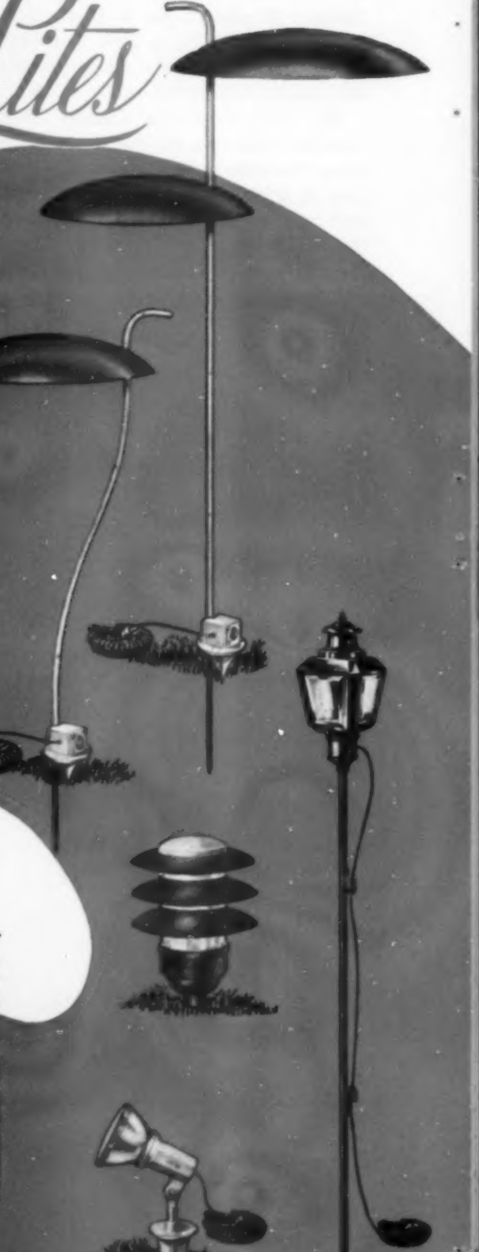
SUBURBAN-LITES will glamorize any lawn, garden or patio — be it a mansion or simple, little suburban home. These completely waterproof fixtures — available in portable or permanent mount models — have so many uses for better, safer, more satisfying living.

Timely . . . needed . . . low-priced . . . these 2 new Progress lines offer you unusual new sales opportunities in the evergrowing field of residential lighting. Both lines have been designed with the distributor as well as the customer in mind; complete for increased sales—concise for smaller inventories and rapid turnover. Two new eye-catching showroom displays will help create extra business for you.

Castline

America's premier line of cast aluminum lamp-holders and accessories, finished in "Krome-Loy" — the amazing chrome-like finish for minimum porosity, increased resistance to aging and corrosion, no maintenance cost. This diversified line offers many unusual opportunities for the home—industry — on the farm.





SEND FOR BULLETIN S-C55

progress

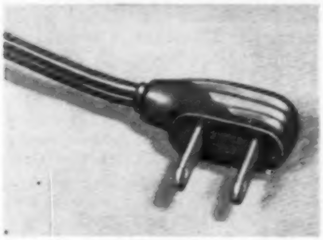
PROGRESS MANUFACTURING CO., INC. • PHILADELPHIA 34, PA.

for grounding type wire; and it can be furnished in brown or ivory.

For additional data, ask for item 5050, *using the card on page* 33.

Plastic molded angle cap developed for line cords

DEVELOPMENT of a new angle male cap that is plastic molded has been announced by the Cords Limited Division of the Essex Wire Corp., DeKalb, Ill. Designated as the TM-11 plug, it is engineered and built for use on line cords for appliances, radios, television receivers and small toys.



This new right angle plug complements Cords TM-7 straight plastic male cap that has been in widespread use for some time, and adds to Cords large and comprehensive inventory of standard and special molds for plugs, connections, strain reliefs and grommets.

For additional data, ask for item 5051, *using the card on page* 33.

Walker Powerduct offers built-in flexibility

A NEW UNDERFLOOR distribution system offering concealed large-capacity raceways with unlimited access possibilities, called Powerduct, has been announced by Walker Brothers, Underfloor Division, Conshohocken 28, Pa., manufacturer of electrical wiring and distribution products. Powerduct removes the hazards, weight, and inconvenience of overhead bus or duct systems, yet provides for future electrical expansion or rearrangement of machines without power famine.

Powerduct is furnished in 10 foot lengths and is installed with junction boxes, couplings, and self leveling supports on form, slab, or fill prior to pouring the finished floor. Pre-set inserts in the duct provide evenly spaced outlet points for standard connections to machines or equipment. If additional outlets should be needed, special "afterset connections" can be made through floor to duct using simple tools.

The duct has 17 square inch cross sectional area, which provides greater capacity than 4½ inch conduit and will accommodate cables up to 500,000 circular mils.

Other features include strong, 14 gauge steel construction, electric welded seam, and corrosion protection provided by a layer of Sherardized Zinc, covered with Dualcote.

Complete Powerduct systems are available from stock, including concrete-proof junction boxes, ells, supports, couplings, caps, etc. Only standard electrician's tools are needed to assemble the entire system.

Powerduct can also be used as an underfloor raceway to give protection or permit future installation of such services as water, gas, oxygen, coolants, etc.

For additional data, ask for item 5052, *using the card on page* 33.

New Keystone wireway features hinged covers

A COMPLETE NEW LINE of flangeless wireway, equipped with hinged covers which swing open to permit faster, easier installation of wiring, is now being produced by Keystone Manufacturing Co., 23328 Sherwood, Center Line, Mich. In addition, the new line also includes auxiliary fittings with hinged covers to make possible the installation of a complete, unbroken wireway system in which conductors can be "laid-in" rather than "fished through," as with conventional type covers.

The newly designed pre-assembled covers are hinged to the wireway and fittings on one side of their length. When opened, they provide unrestricted accessibility to conductors, yet as a permanent integral part of the equipment, they eliminate the time, trouble and effort required for removal and replacement of detachable covers.

Keystone flangeless hinged cover wireways are available in five sizes and in standard lengths. Among the auxiliary fittings produced in corresponding sizes with hinged covers are: 90° elbows and pull boxes, "T" fittings, 45° elbows, as well as suitable closing plates, "U" connectors and panel adapters.

For additional data, ask for item 5053, *using the card on page* 33.

Superduct designed for extra long life

A NEW HEAVY - DUTY rigid steel electrical conduit, Superduct, especially designed to provide extraordinarily long life under very severe corrosive atmospheres such as are found in electrical construction industry, has been developed by National Electric Products Corp., Gateway Center, Pittsburgh, Pa.

Like National Electric's Sherarduct steel conduit, Superduct is galvanized by the Sherardizing process. It is then coated with a special vinyl chloride copolymer, pigmented and plasticized enamel finish, inside and out. This new finish protects the galvanized conduit against the unusually corrosive influences common in construction and industry.

For additional data, ask for item 5054, *using the card on page* 33.

Triangle EMT makes wire pulling easier

A NEW E.M.T. with a "Silver" inside finish, said to make wire pulling easier, has been introduced by Triangle Conduit & Cable Co., Inc., Triangle & Jersey Aves., New Brunswick, N. J.

The finish in this new Triangle E.M.T. is a hard, glossy coat which makes a smooth raceway without "tackiness." In addition, the finish is said to protect the inside of the Triangle tubing against corrosion and rust.

The outside of Triangle E.M.T. is galvanized wih zinc 99.9 per cent pure.

For additional data, ask for item 5055, *using the card on page* 33.

'PK' armored cable clamp affords exceptional speed

EXCEPTIONAL SPEED and ease of insallation is provided by the new Type "PK" armored cable clamp recently announced by O. Z. Electrical Manufacturing Co., Inc., 262 Bond St., Brooklyn 17, N. Y.

Designed for terminating interlocked armored cable, this clamp offers such features as slotted hex bolts that may be tightened either by wrench or screw driver and a flanged body that eliminates the need of an extra lock nut for securing the clamp in the knock-out hole.

The Type "PK" armored cable clamp has a malleable iron body with a clamping cap that fastens to the body by means of slotted, hexhead bolts. It is designed with ample thread length for use with all standard conduit fittings and terminators from one-inch to five-inch and is available for interlocked armored cable ranging in size from .99-inch O. D. to 4.38 inches O. D.

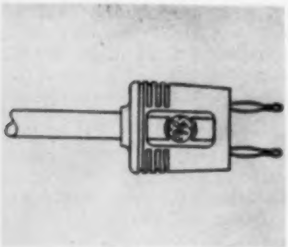
Bakelite insulating bushings are provided to protect the individual conductors at the point where they emerge from the fitting.

For additional data, ask for item 5056, using the card on page 33.

New G-E plug design insures firm connection

A NEW TYPE of plug contact for electric cord set attachment, that provides firm connection, even in old or worn outlets, has been announced by General Electric's Accessory Equipment Dept., Bridgeport, Conn.

The new "BTB" contact is a plug prong of unique bowed design that presses outward against the receptacle contacts to maintain a firm electrical connection.



It also incorporates a precision-formed anchor loop at the end which holds the contact securely in the receptable. This combination provides greater holding power than ordinary straight contact blades, eliminates accidental disconnect, and prevents the partial dislodgment that causes overheating in worn outlets. The new BTB contacts will not damage the receptacle.

For additional data, ask for item 5057, using the card on page 33.

Unimatic introduces 45° threaded angle connectors

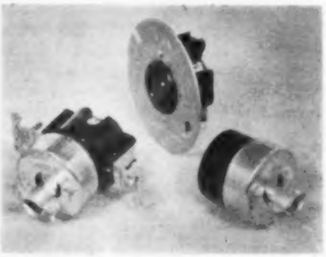
NEW CONNECTORS, ⅜-inch—45 degree, for attaching armored cable to any threaded electrical outlets have recently been introduced by the Unimatic Corp., Route 22 & Koehl Ave., Union, N. J. Known as Harbot connectors, they greatly simplify installations of electrical switches, motors, junctions and fixtures. At the same time these connectors form a rigid fitting which protects wiring from damage at the point of entry to the housing. They are especially valuable in installations where vibrations exist, since they will not vibrate loose.

Harbot connectors are made of a special aluminum die-cast alloy. This model has three parallel ridges or serrations on the lip of each of the two halves. These serrations match standard ½-inch I.P.S. female threads in switch boxes, motor housings, condulets and the like. Operating on a simple cam-wedge principle, it is possible to install this connector from the outside of the box or housing after the wiring hook-up is completed. Positive positioning of the cable connector assembly in any desired direction is assured when two standard machine screws are "pulled up home" on the cable. The only tool required is a screw driver — no washers or lock-nuts are necessary.

For additional data, ask for item 5058, using the card on page 33.

Leviton wiring devices provide safe connections

NEW ELECTRICAL wiring devices are now available that assure uninterrupted power flow under severest conditions of vibration, motion or accidental pull-out. Manufactured under the trade name Lev-O-Lock by Leviton Manufacturing Co., Brooklyn 22, N. Y., these devices are designed to provide safe, dependable electrical connections.



A simple turn of the cap in the companion connector or receptacle and it is securely locked. The connection won't shake loose nor can it be disconnected accidentally.

Available in two, three and four wire caps, connectors and receptacles in 10 and 20 amp ratings, Lev-O-Lock devices are made of sturdy phenolic to withstand the roughest applications. Other features include double wiping contacts of heavy gauge phosphor bronze on all receptacles; extra large terminal screws and ample wiring room for quick and easy wiring.

For additional data, ask for item 5059, using the card on page 33.

Elbows added to line of entrance equipment

THE ADDITION of entrance elbows to their line of service entrance equipment was recently announced by the J. A. Weaver Co., St. Louis 6, Mo.

These new elbows are designed to go with Weaver's "Dual-Grip" Entrance Heads, which have a built-in connector clamp for installation on either EMT or rigid conduit, and Weaver's bronze ground clamps which are made in sizes for ¼-inch to four-inch pipe.

Further information may be obtained by writing the company.

For additional data, ask for item 5060, using the card on page 33.

Pittsburgh protectors color code conduit sizes

THREAD PROTECTORS made of a tough, durable polyethylene plastic, with a different bright, easily recognized color for each size of conduit, have been introduced by the Pittsburgh Standard Conduit Co., 61 Bridge St., Pittsburgh 23, Pa.

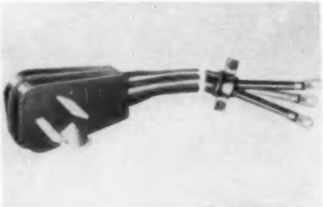
These PS color coded thread protectors are standard on all Pittsburgh Standard Hot-Dip Galvanized Conduit, in sizes from ½-inch through one inch. Conduit with PS thread protection in 1¼-inch and 1½-inch sizes will be available soon.

The polyethylene plastic chosen for this knock-around job was selected because it is resistant to oil and acid, is thermo-setting, and will take temperatures up to 185 degrees F. The thread protectors are perfectly fitted so that they will not fall off despite the roughness of the handling. They are, however, extremely easy to take off, a quick slit with a pocket knife doing the trick. No twisting and no tugging is necessary.

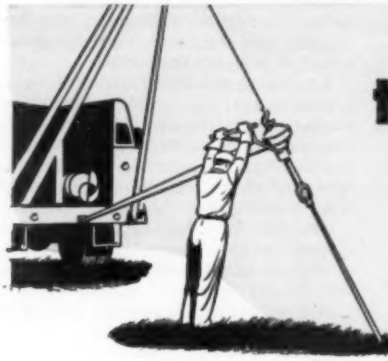
For additional data, ask for item 5061, using the card on page 33.

Royal Electric offers molded dryer cord set

A NEW DRYER CORD SET has been added to the molded rubber cord set line of Royal Electric Co., Inc., according to an announcement from the company's general offices in Pawtucket, R. I. Made with an L-shaped grounding blade, for use with flush or surface receptacles with an L-shaped grounding slot, it is for dryers and other appliances and equipment which require only 30-amp service under NEMA standards and the new UL code.

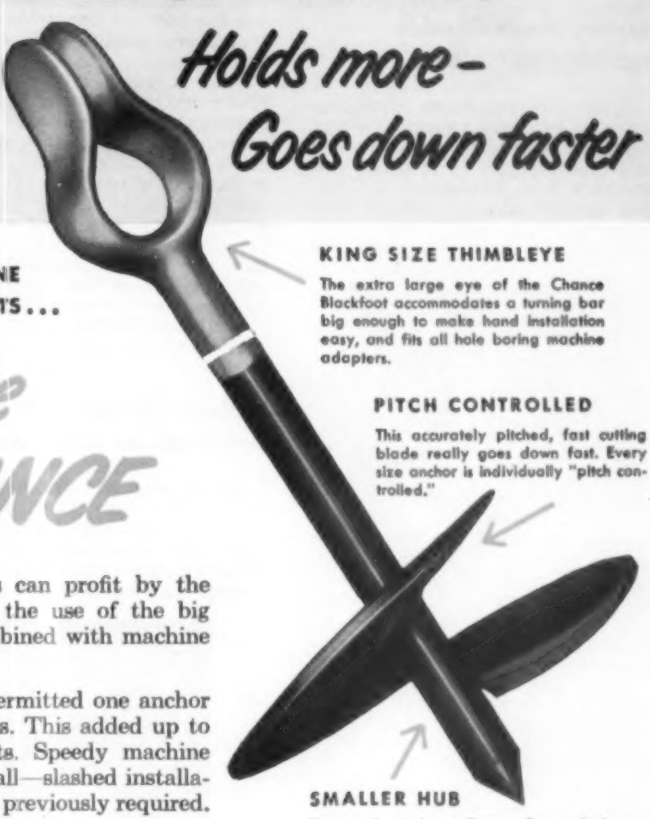


The stock line includes lengths from 36 inches up, made with 3 No. 10 conductors. Rated at 30A-250V, this new cord set makes it unnecessary to overload the equipment because it is made especially for the lower service. The L-shaped ground-



the CHANCE "Blackfoot"

Holds more -
Goes down faster



KING SIZE THIMBLEYE

The extra large eye of the Chance Blackfoot accommodates a turning bar big enough to make hand installation easy, and fits all hole boring machine adapters.

PITCH CONTROLLED

This accurately pitched, fast cutting blade really goes down fast. Every size anchor is individually "pitch controlled."

SMALLER HUB

The smaller hub on Chance Screw Anchors means less friction—easier installation. Less earth is disturbed during installation. That's why the Blackfoot has greater holding power.

CAN BE INSTALLED BY MACHINE
TO CUT LINE CONSTRUCTION COSTS . . .

Give the Guy a CHANCE

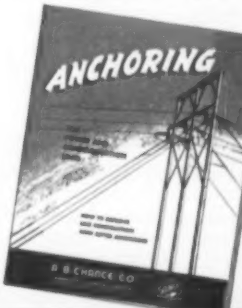
Power companies trying to trim costs can profit by the experience of a Florida Utility where the use of the big Chance 15 inch Screw Anchor was combined with machine installation to reduce anchoring costs.

The use of the fifteen inch Blackfoot permitted one anchor to take the place of several smaller ones. This added up to a considerable saving in material costs. Speedy machine installation—with fewer anchors to install—slashed installation time to a small fraction of what was previously required.

How did these anchors hold?

Company personnel conducted their own pull tests to determine the holding power of these Chance Anchors. The dynamometer showed *no* creep at 22,000 pounds!

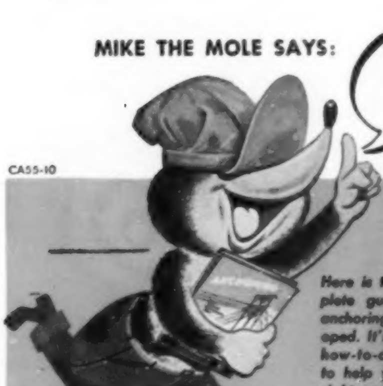
You can protect your investment in line construction by specifying Chance Anchors for your guys. They really hold the load!



MIKE THE MOLE SAYS:

"Man, this book can help you 'dig' anchors better. GET YOUR COPY TODAY."

CA55-10



Here is the most complete guide to better anchoring ever developed. It's chock full of how-to-do-it material to help you select the right anchor for every guying job—and install it properly. It's FREE!

A. B. CHANCE CO. • 217 N. ALLEN ST. • CENTRALIA, MO.

O.K. Have "Mike" send us______copies of "ANCHORING"

NAME____________________

COMPANY____________________

ADDRESS____________________

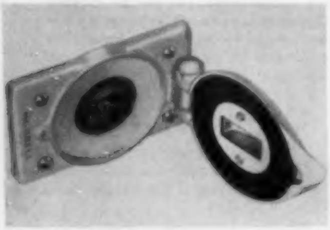
CITY & STATE____________________

ing blade fits only the receptacle intended for it.

For additional data, ask for item 5062, *using the card on page* 33.

Harvey Hubbell adds weatherproof plate

A NEW WEATHERPROOF plate featuring a recessed cover to accept toggle switches has been announced by Harvey Hubbell, Inc., State and Bostwick Ave., Bridgeport 2, Conn. The unit is supplied with a fibre insulating disk which allows installation of toggle or lock-type switches. By removing the "knock-out" in the disk, 2- and 3-wire, 20-ampere, Twist-Lock receptacles can be mounted. Or by removing the disk entirely, 4-wire, 20-ampere, Twist-Lock receptacles can be utilized.



Other new features include an added ridge in the cover to improve cover seal. When used with receptacles and caps equipped with Hubbell "Seal-Tite" rubber covers, the outlet is completely sealed when plate is open, but when cap is withdrawn, cover snaps shut and seals receptacle from moisture. The fibre disk has an added advantage in that it acts as an insulator for face-wired devices and effectively guards against dust and dirt.

For additional data, ask for item 5063, *using the card on page* 33.

Raco bar hangers give application flexibility

A NEW ADJUSTABLE bar hanger has been announced by Raco Division of All-Steel Equipment, Inc., Aurora, Ill.

Raco has developed a special shape that adds tremendous strength to their new hanger. Adjustment is obtained by a telescoping action of the two halves of the hanger similar to the action of an adjustable curtain rod.

Another new advantage is a clip which secures the box to the bar without interfering with device space in the box. It also provides added wiring room in multiple device boxes.

The new bars are available in two styles, clip bars and stud bars. Each bar style comes in two sizes to fit various studding spacings. Both new clip bars and stud bars fit all sizes of furring and studdings from one-inch x two-inch to two-inch x four-inch and all sizes of joists and rafters. According to the manufacturer, it is the only bar hanger designed to fit modern shallow-wall construction.

Other advantages include: simplicity and ease of installation; clean electrogalvanized finish; flanges automatically locate box at proper depth for plaster walls and dry walls; avoids notching of studding and bending of hangar to achieve proper box location; and so flexible in application that only four new Raco bar hangers replace 16 models of conventional bar hangers, and thus reduce necessary inventories.

For additional data, ask for item 5064, *using the card on page* 33.

Gedney Electric offers combination entrance cap

GEDNEY ELECTRIC Co., RKO Bldg., Radio City, New York 20, N. Y., announces an important addition to their line — a new combination entrance cap approved by Underwriters' Laboratories for use with both rigid conduit and EMT. Among the advantages of this new fitting are elimination of the need for threading rigid conduit and the simplification derived from purchasing and stocking one entrance cap instead of two.

The new Gedney Combination Entrance Cap is available in standard sizes from ½ inch to two inches. Like most Gedney Fittings, it is made of malleable iron to prevent breakage, and hot dip galvanized for maximum service life.

For additional data, ask for item 5065, *using the card on page* 33.

Porcelain Products adds service entrance mast kit

A SERVICE ENTRANCE mast kit, complete in every detail has been announced by Porcelain Products, Inc., Findlay, Ohio. Immediately available, this kit comes with all parts—even the roof flashing and all necessary nuts, bolts, lag screws, and nails. Everything furnished but the conduit and the ranch style house to which it is to be attached.

Known as the 2075 series kit—it is a convenient, all inclusive, mast installation kit. The fact that it can be erected by an electrician with electricians tools adds to the wide acceptance of those installers who have been looking for a complete unit.

Because the conduit can be purchased at lower cost, from local stocks, it has not been included in this kit.

For additional data, ask for item 5066, *using the card on page* 33.

Okonite designs cable with aluminum sheath

OKOTHERM-INSULATED, aluminum-sheathed cable, recently announced by the Okonite Co., Passaic, N. J., is designed for continuous operation at 150C and up to 200C under certain conditions.

Available for both power and control cable circuits, it provides an extra labor - saving advantage through its own built-in aluminum conduit.

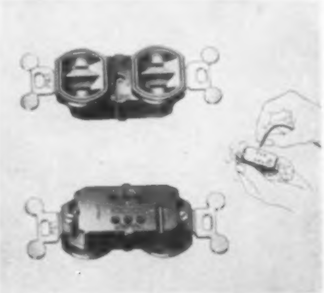
Briefly, these are the main advantages: flame and heat resistance; no conduits and related "pulling-in" problems; moisture and ozone resistance; space-saving small diameter; lightweight for easy handling; high dielectric strength; and corrosion resistance.

Applications, construction components, dimensions, terminating techniques, and fittings are described in new bulletin 1088.

For additional data, ask for item 5067, *using the card on page* 33.

New P&S duplex outlet has screwless terminals

A NEW DUPLEX OUTLET featuring easy-to-wire screwless terminals and double strip contacts has been announced by Pass & Seymour, Inc., Solvay Station, Syracuse 9, N. Y. Termed the P&S 1500, it can be wired in two easy steps—strip wire to gauge (molded in back of outlet)—insert wires in wire holes. There are no wire loops to make and no



screws to run down. Just a few seconds and connections are made.

High quality phosphor bronze spring contacts hold wires securely, and far exceed UL "pull" requirements. When necessary, wires can be removed by inserting eight penny nail or other pointed instrument in center hold on either side.

Double, torsional contacts are of high quality phosphor bronze and are designed to give a perfect "long line" contact with a minimum amount of heat, assuring long life. The back is completely insulated for greater safety.

The unit is available in brown, P&S 1500, or ivory, P&S 1500-I.

For additional data, ask for item 5068, using the card on page 33.

Rheostat incorporates new design features

A NEW 300 WATT ring rheostat incorporating several interesting design features has been added recently to the rheostat line of Ward Leonard Electric Co., Mt. Vernon, N. Y.

These new Bulletin 1116 Vitrohm Ring Type Rheostats are for use in ac and dc circuits where smooth, accurate current control is essential. They are particularly useful where "stepped" rheostats do not furnish sufficiently close adjustment. Typical control applications include: generator and motor field, electron tube, battery charging, oven and lamp dimming control.

Base and core consist of high grade, high dielectric strength ceramic. Vitreous enamel bonds the base to the core and permanently locks the special alloy resistance wire in place.

Contact arm assembly features: balanced steel arm equipped with two sintered, self-lubricating copper graphite shoes; heavy compression spring, housed in a cold molded insulator, maintaining uniform contact shoe pressure on resistance winding and collector ring; and a corrosion resistant, 3/8 inch diameter steel shaft, which turns in a self-lubricating sleeve bearing.

Dimensions: six inches in diameter; back-of-panel depth only 2 3/16 inches. Resistance values range from 1 to 2500 ohms. 300 watt rating based on 300°C rise. Tandem mounting, tapered windings and other non-standard features available on special order.

For additional data, ask for item 5069, using the card on page 33.

Pyle-National adds 'OR' fitting series

A NEW SERIES of conduit Pylets, designated the "OR" series, has been introduced by the Pyle-National Co., 1334 N. Kostner Ave., Chicago 51, Ill. These are designed with many interchangeable features to meet all electrical conduit fitting requirements for machinery wiring as well as plant maintenance and new construction.

The accurate ferrous alloy castings have tapered machine-cut threads. The large flat-back area is easily drilled for secure mounting on vibrating machines and many other areas.

The interiors are roomy and smooth to facilitate wire pulling and the well-rounded edges prevent wire damage. The oval covers have self-retaining screws.

For additional data, ask for item 5070, using the card on page 33.

Stab-lok No. 2068 ideal for homes or small plants

A NEW STAB-LOK circuit breaker panelboard, catalog No. 2068, is now being produced by Federal Pacific Electric Co., 50 Paris St., Newark, N. J. The No. 2068, designed in accordance with the National Electric Code, has provision for 22 circuits, and is suitable for homes or small industrial operations.

The 2068 has six three-wire circuits which are fed in parellel from the 200 amp mains. One of these circuits controls the lower bus which can accommodate either eight single pole Type NA Stab-lok circuit breakers or four two-pole simultaneous trip circuit breakers. With the new "E" slots in the bus bar, the device will be able to accommodate ten lighting breakers in the lower bus.

The enclosure for the new 2068 circuit breaker is the combination flush-surface type. The interior is mounted on a pad and four leveling screws are provided for plaster adjustment. Main lugs are the removable, solderless type, and the ground bus is the straight-through wiring type.

The Stab-lok circuit breaker panelboard, catalog No. 3068, a similar device, is also available with 300 amp mains.

For additional data, ask for item 5071, using the card on page 33.

Duplex receptacle takes standard caps

A NEWLY-DESIGNED 3-Wire Duplex Receptacle of the grounding type has just been added to the industrial line of the Rodale Manufacturing Co., Inc., of Emmaus, Pennsylvania. 15A, 125V, it takes standard parallel or polarized parallel caps and is adaptable for back or side wiring.

It features a specially-constructed Break-off point on terminals for 2-circuit installations. In addition, it will accommodate new grounding type U-blade plugs as well as 2 armored or rubber caps. Large binding head screws assure quick, easy wiring, with a hexagonal green screw for the grounding wire.

Completely interchangeable with all other makes, it fits standard duplex plates, and is highly recommended for use in situations where the grounding of exposed metal parts of portable electrical equipment is required. Available as Rodale Cat. No. 572.

For additional data, ask for item 5072, using the card on page 33.

T&B connectors protect against corrosive fluids

NEW LIQUID-TIGHT flexible conduit connectors for Sealtite or equivalent have been announced by the Thomas & Betts Co., 72 Butler St., Elizabeth 1, N. J. This connector line, listed by Underwriters' Laboratories and meeting J.I.C. requirements, includes straight, 45 degree angle and 90 degree angle connectors, ranging in K.O. size from ½ to four inches and in conduit size from ⅜ to four inches, both sizes inclusive. The T&B line also includes sealing O-Rings for a liquid-tight seal between the connector and the knockout box in the same sizes.

The T&B line features a blue plastic gripping ring. The plastic jacket of the conduit is held in the plastic ring, plastic to plastic, the conduit is never injured. When the gland nut is tightened, the bright blue lip on the plastic gripping ring appears, assuring that the job is tight.

The tapered tube in the T&B connectors takes up more than the manufacturing tolerance, expands the conduit slightly, and makes a sure ground connection. The long tapered tube is integral with the body of the connector and grounds the conduit positively, every time, regardless of variations in the I.D. of the conduit.

For additional data, ask for item 5073, using the card on page 33.

G-E coated conduits resist solvent action

NEW POLYVINYL chloride-coated rigid conduit and electrical metallic tubing are now being produced by General Electric's Conduit Products Dept., Bridgeport 2, Conn.

The extruded seamless coatings provide uniform, non-porous protection over the entire length of the raceways, and effectively resist the action of grease and oils, and organic solvents. They offer excellent resistance to sunlight and weathering.

The polyvinyl coating has a tough, durable finish that never needs painting, and is easy to clean. It has an average tensile strength of 2500 pounds per square inch, with excellent resistance to tearing and abrasion.

These coated conduits are especially recommended for installations in areas subjected to unusual atmospheric conditions such as in paper, soap, fertilizer, industrial inorganic and organic product plants, and in canneries, meat packing and food processing plants.

The coated rigid conduit is available in sizes from ½-inch to 3½-inches and in EMT in sizes from ½-inch to two-inches.

For additional data, ask for item 5074, using the card on page 33.

Two connection aids announced by National

A NEW ONE-HALF-INCH size bushing for electrical connections, and a redesigned Bondnut for easier installations in locking electrical conduit fittings at panel and junction boxes, have been announced by National Electrical Products Corp., Gateway Center, Pittsburgh, Pa.

Especially designed with a flared skirt for easier starting and deep-cut threads which permit maximum tightening with the fingers, the new bushing has prominent raised lugs for final settings with a screwdriver. A smooth curled throat protects wire insulation from cutting or abrasion.

Made of formed steel, which has been galvanized after threads have been cut and completely protected against corrosion, the new ¾-inch Bondnut has four large, perpendicular lugs which permit easier tightening with a screwdriver. It also has sharp, beveled bonding teeth on one side which easily cut into the metal wall of panel and outlet boxes for metal grounding and vibration-proof lock.

For additional data, ask for item 5075, using the card on page 33.

Distributor display for bells and buzzers

THE EDWARDS Co., Norwalk, Conn., has introduced a new display panel for use in distributor sample rooms. The panel is white and blue and is 18 inches wide by 30 inches high.

Manufactured of 3/16-inch composition board, with all equipment mounted and the bells, buzzers and push buttons operating, the panel may be displayed on the counter or hung on the wall.

It is available in limited quantities. Orders may be placed direct with the company or through an Edwards representative.

For additional data, ask for item 5076, using the card on page 33.

Non-corrosive straps developed by Holub

NON-CORROSIVE plastic straps for fastening and supporting all types of open wires, cables and cords have been developed by Holub Industries, Inc., Sycamore, Ill.

These straps are made of polyethylene, which is strong, tough and pliable, yet light in weight. They are made in black and ivory colors.

Important advantages claimed are that plastic straps are unaffected by heat, cold, moisture, salt air and gaseous fumes found in many localities. They will not age, rot, rust or corrode.

The edges of the straps are thick, pliable and round for protection against short circuits, especially under conditions of vibration, strain, wind and weather.

They are fast and easy to use because the mounting holes are designed to hold screws or nails while driving.

For additional data, ask for item 5077, using the card on page 33.

New plug-in breaker added by Westinghouse

A NEW SINGLE-POLE 120-volt, plug-in circuit breaker for high-quality, low-cost circuit protection in lighting panelboards and load centers is available from the Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa.

With an interrupting capacity of 5000 amperes, the Quicklag® PL breaker is offered in five standard ratings between 15 and 50 amperes. Circuit protection is based on a thermal magnetic trip which permits inverse time-delay tripping on slight overloads and instantaneous tripping on short-circuits and heavy overloads.

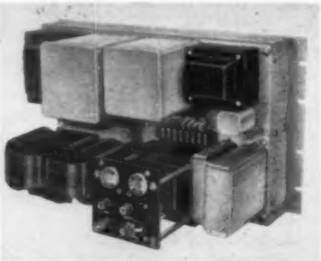
After tripping, the position of the operating handle readily identifies the interrupted circuit. Other features include a quick-make, quick-break mechanism and non-welding silver-alloy contacts. A lock dog, available as an accessory, can be used to prevent unauthorized operation.

For additional data, ask for item 5078, using the card on page 33.

Superior Electric offers tubeless voltage regulator

AN AUTOMATIC REGULATOR designed for unattended installations, and operating without tubes or moving parts has been announced by Superior Electric Co., Bristol, Conn.

The device is known as the Stabiline Automatic Voltage Regulator Type TM (Tubeless Magnetic). It will be made available for microwave or other installations where a voltage regulator cannot easily be attended or where there is vibration that would cause electronic tubes to break. The two models have ratings of 1 kva. One is a rack model, the other a cabinet model.



The new device has several unusual characteristics. It holds output voltage to within a one volt band, has a speed of response of less than one second for full range correction. Maximum waveform distortion is three per cent. The units will correct for voltage input change from 95 to 135 volts. The nominal output is 115 volts. The frequency range is 55 to 65 cycles.

For additional data, ask for item 5079, using the card on page 33.

G-E mercury switch has lighted handle

A NEW MERCURY SWITCH with a lighted handle has been added to General Electric's mercury switch line, according to an announcement by the company's Wiring Device Department, Bridgeport 2, Conn.

A tiny neon light in the handle of this switch glows when the switch is in the OFF position, making it ideal for such locations as bathrooms,

National Electric

FLEXLAY CABLES

for Underground Installation

National Electric Type USE, Style RR "Flexlay" Cables provide the most economical, permanent underground electric service installation. Designed for direct burial in the ground, "Flexlay" cables are flexible . . . light weight . . . economical . . . easy to handle . . . quick to install.

Check these Flexlay features.

Tough, durable NEOPRENE jacket—Sure protection against crushing by settling earth . . . absorbs vibration shocks . . . resists soil acids and alkalies, moisture, oils, greases, heat, flame. Will not rot, corrode or support fungus growth. No galvanic action.

Long-life Thermo-Seal insulation—Exceptional dielectric stability in wet locations and low water absorption factor assure trouble-free underground service.

Available in sizes 14 through 750 MCM in single and multiple conductors.

Listed by Underwriters' Laboratories, Inc. Sold through electrical wholesalers.

National Electric Products

PITTSBURGH, PA.

3 Plants • 10 Warehouses • 36 Sales Offices

NATIONAL ELECTRIC PRODUCTS CORP.
50TH
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National FLEXLAY

bedrooms, long hallways, entrance ways, nurseries, hospital rooms, and hotel rooms. It also can be used as a "reverse" pilot light for installation at the head of basement stairs, foot of attic stairways, etc. In such locations, the lighted handle not only makes these switches easy to locate, but indicates that the light in basement or attic is turned OFF.

Tests indicate that under normal operating conditions this neon-lighted handle will give 10-15 years of service. Cost of operation for a switch will vary with local utility rates, but at an average rate, this cost is estimated to be about three cents a year.

The catalog number of the switch is GE5531-2 and it is available with ivory handle only.

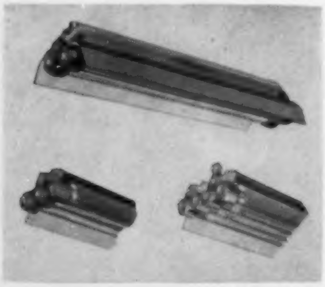
For additional data, ask for item 5080, *using the card on page* 33.

Lamps, fixtures, luminaires

Fluorescent fixtures for hazardous locations

Appleton Electric Co., 1701-59 Wellington Ave., Chicago 13, Ill., has announced a new line of "EFU" explosion-proof fluorescent fixtures for use in hazardous locations: Class I, Groups C and D; Class II, Groups E, F, and G.

The "EFU" fixtures now include two, three and four-lamp designs for both straight and angle mounting, and offer a choice of three different ballasts: bi-pin "Pre-Heat"; single-pin "Slimline"; and a new bi-pin "Rapid Start" ballast that provides longer lamp and ballast life, quiet operation, and flicker-free illumination with no starters required.



These Appleton "EFU" fixtures permit safe re-lamping from either end. Fixtures may be installed in a continuous row, end to end, and will conform to National Electric Code standards when used with appropriate Appleton fittings. A wide variety of installations to fit every need are assured.

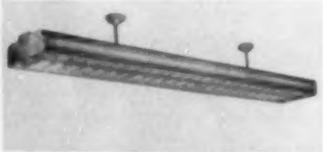
Designed for use with 40-watt, 48-inch, T-12 and 100-watt, 60-inch, T-17 fluorescent lamps, the Appleton "EFU" explosion-proof fixtures are factory sealed, eliminating the need for external seals normally required within 18 inches of arcing devices. Line connections are made to a terminal block in the junction chamber. End housings are cast aluminum. Reflectors are steel, white enameled inside with gray exterior, and may be easily removed for cleaning.

For additional data, ask for item 5081, *using the card on page* 33.

Williams Products adds new fluorescent fixtures

A shielded, semi-direct, low-surface-brightness light is provided by the new Series 8000 fluorescent fixtures recently introduced by H. E. Williams Products Co., Carthage, Mo.

Top feature of the Series 8000 fixtures is the illuminated metal side panels. When pendant-mounted, the semi-direct unit projects about 40 per cent of its light upward and 60 per cent downward. A small part of the upward component is reflected by baffles onto the side panels causing them to glow softly, creating a visual effect similar to translucent glass or plastic side panels and reducing harsh contrasts between sides and lighted bottom area. Also, danger of breakage found in fixtures with glass sides is eliminated.



For flush mounting, the fixtures can be equipped with reflector sets for 100 per cent downlighting. A report by Electrical Testing Laboratories, Inc., shows a high efficiency of 82 per cent. The finish is high-bake, non-yellowing white enamel with a reflectance factor of 91 per cent. Hinged removable louvers and wide fin spacing make cleaning and relamping much simpler.

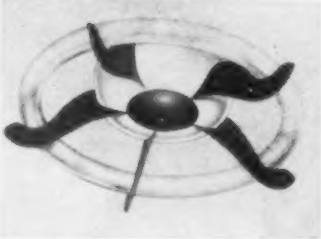
For additional data, ask for item 5082, *using the card on page* 33.

Carter Decorator line affords color, contrast

A new "Decorator" line of Circline lighting fixtures has been announced by the Carter Lighting Co., Chelsea 50, Mass. The new circlines offer louvers and center ornaments in black, white, chrome and gray combinations and were specifically developed to answer the current trend calling for "color and contrast" design.

The "Decorator" series has been adapted to the standard Carter, Venus, Halo and Saturn circlines and features the Carter perforated steel louvers for efficiency and low brightness.

The Carter Venus is the popular 32-watt circline which was engineered to furnish maximum light output. Unusually high in lighting efficiency describes the Carter Halo 40-watt circline. Combining the efficient 40-watt lamp with the 32-watt lamp the Carter Saturn is recommended for installations where exceptionally-high light output is required. All Carter circlines are equipped with instant-lighting ballasts.

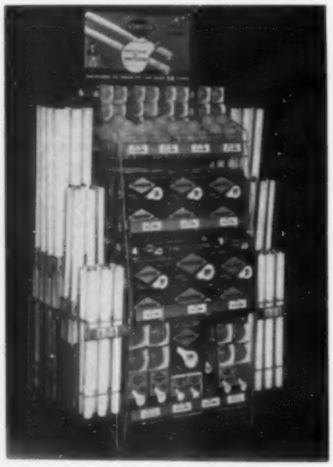


For additional data, ask for item 5083, *using the card on page* 33.

Champion Lamp Works offers bulb display

A new light bulb or combination bulb and fluorescent tube display has been developed by Champion Lamp Works, Lynn, Mass., to provide the necessary point-of-sale reminder for the consumer with empty sockets to fill.

Set up for bulbs alone the Champion merchandiser holds more than 525 of the popular sizes of incandescent bulbs, displaying the four lamp packages, two lamp sleeves and individual bulbs. Yet the entire unit requires only 20 x 25 inches of floor space and stands 67 inches high, including the three color metal sign at the top. It is of sturdy, one



piece construction and can be set up in thirty seconds.

When it is desired to display fluorescent tubes as well as bulbs, side baskets are supplied and these hold 48 tubes, the baskets being 15½ inches high, 7¼ inches long and 18⅛ inches wide. Construction is all metal, light but sturdy and assembly requires no nuts, bolts or screws.

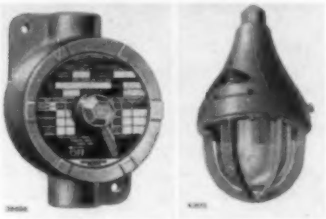
Two or more of these units can be quickly fastened together when a larger selling display is needed.

This practical merchandiser, in addition to its reminder value, encourages self service and permits quick checking and restocking of lamps.

For additional data, ask for item 5084, *using the card on page* 33.

C-H adds lighting system for hazardous area use

A COMPLETE lighting system for specific use at hazardous areas (Class I, Groups A and B) where acetylene and hydrogen are present, has been introduced by Crouse-Hinds Co., Wolf and 7th North Sts., Syracuse, N. Y. Designed primarily for chemical or refining processes which require the use of hydrogen, the new system consists of the following UL-approved components: 150 and 200-watt EVA 295 pendant lighting fixtures, EAB junction boxes, FSPC tumbler switches, EYS seals, UNY unions, and EC series flexible couplings and flexible fixture hanger supports.



The system's individual units are similar in appearance and size to other Crouse-Hinds explosion-proof fixtures and fittings for Class I, Groups C and D locations. In this way, installation and maintenance practices have been kept uniform. No additional skills or tools are needed to install the new units.

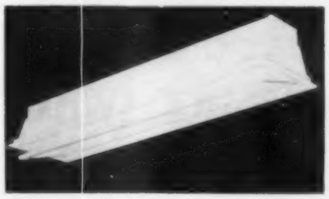
For additional data, ask for item 5085, *using the card on page* 33.

Magic Frame troffer is easily maintained

THE ADDITION to their line of lighting fixtures of the Magic Frame troffer is announced by Electro Silv-A-King Corp., 1535 S. Paulina St., Chicago 8, Ill.

This new troffer can be easily inserted and maintained without the use of any tools. "Speedy Latches" in wireway channel provides efficient and simple hanging. All electrical components are contained on a removable chained cover, and the door is installed and removed by merely lifting and shifting.

In addition, the Magic Frame troffer has bottom door hinges on a concealed pivot; bottom door locks in position by concealed retainer; face of troffer presents a smooth appearance; door is interchangeable into any other Magic Frame fixture. No marking or sorting of door is necessary as these features allow simple installation and removal of any number of doors for servicing without disturbing office routine.



Each Magic Frame troffer can be furnished with a "Lite Gard" fusetron fuse to protect against thermal and electrical overload. This fuse can be removed without disturbing lamps, wiring, or removing cover plates.

The Magic Frame troffer is available with all types of flat glass and plastic diffusers as Alba-Lite, Fota-Lite, Crysta-Lite, Twinlens, and P4 Diamond Pattern Plexiglas. Slimline, rapid start fluorescent, and standard fluorescent, two, four, five and eight foot lengths, with one, two, and three lamps.

For additional data, ask for item 5086, *using the card on page* 33.

G-E develops 750-watt high-voltage lamp

DEVELOPMENT of a new 750-watt high-voltage lamp using an R-52 bulb, designed for use in high-bay industrial areas, has been announced by General Electric's Lamp Division at Nela Park, Cleveland 12, Ohio. It is intended to serve as a companion to G-E's present 500-watt high-voltage R52 lamp.

Similar to the "500" in most respects, the new 750-watt R-52 is said to be the solution to many general lighting problems in industrial plants having high bays, dust and dirt problems, and 230-250-volt electrical systems.

The new lamp, like its 500-watt companion, is described as being designed to reduce lighting maintenance costs to a minimum. It is said to provide excellent general lighting for such plants as: steel mills; foundries; welding shops; and railroad car shops. G-E engineers point out that relatively little dust and dirt can collect on the bulb's bottom surface through which the light is emitted.

Included in the electrical data pertaining to the new "750-R-52" are these: mogul screw mechanical base; collector grid over filament; maximum all-over length, 11¾ inches; 2000-hour life; and base-up burning position.

For additional data, ask for item 5087, *using the card on page* 33.

Industrial fixture announced by Gibson

A COMPLETELY NEW concept of industrial fixture design has been announced by Gibson Manufacturing Co., 1919 Piedmont Circle, N. E., Atlanta, Ga. The new fixture, designated the Ortho-88 Industrial, is mounted on a Uni-Race channel, sections of which are furnished as part of the fixture.

Uni-Race sections are joined to provide an unbroken, open wire-way any desired length, from a few feet to several hundred feet. The special design of the Uni-Race insures perfect alignment, exact fixture spacing and a fixed power source for each fixture through receptacles mounted at fixed intervals.

After the Uni-Race has been installed, fixtures may be mounted without the use of tools, in continuous runs or at spaced intervals. They may be quickly and easily moved from place to place as conditions demand, without the use of tools, without further electrical work, and without interrupting service to other fixtures on the circuit.

For additional data, ask for item 5088, *using the card on page* 33.

Day-Brite CFI-25 aids worker visual comfort

DAY-BRITE LIGHTING, INC., 5411 Bulwer Ave., S. Louis 7, Mo., has announced a new fixture which they term "the greatest development yet" in the industrial lighting field. Called the Lifetime CFI-25, the new fixture is a handsome, snow-white porcelain enameled industrial fixture with 25 per cent uplighting.

The CFI-25 boasts eight-foot reflectors, which are furnished, affording easier straight alignment of con-

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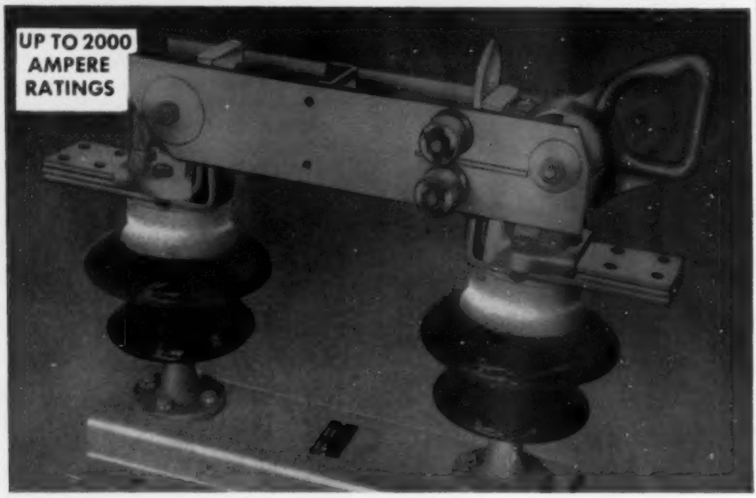
"HH" HI-PRESSURE HOOKSTICK SWITCH



Available 7.5-69KV, 400 through 2000 Ampere ratings
Shown is 15KV 2000 Ampere

Both the hinge and jaw employ one-piece bus bar copper to form the contact post and its terminal pad, permitting current flow through an all-copper path. This and the following features combine to give you more for your switch-purchasing dollars:

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- Blade latch precludes opening except by deliberate action
- Hi-pressure line contacts—jaw *and* hinge—with silver to copper surfaces
- Heavy duty trussed blade with wide spacing between bars
- Galvanized steel wing-channel (illustrated) or regular channel base
- Hot-dip-tin terminal pads when specified

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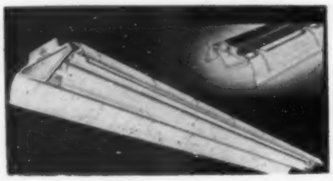
tinuous runs of fixtures. Every square inch of surface is finished in vitreous porcelain enamel, both on the inside and top surfaces of the reflector. Apertures are die-embossed and new ribbed construction reinforces lateral strength to prevent the reflector from spreading and getting out of alignment. A longitudinal "V" center louver provides 30 degree crosswise shielding and reinforces lengthwise rigidity.



The CFI-25 is listed and recommended with hinged louver assembly but is also available without it. Also available in the series is the CFI-10 with 10 per cent uplighting, which permits a choice of uplighting, depending on plant conditions.

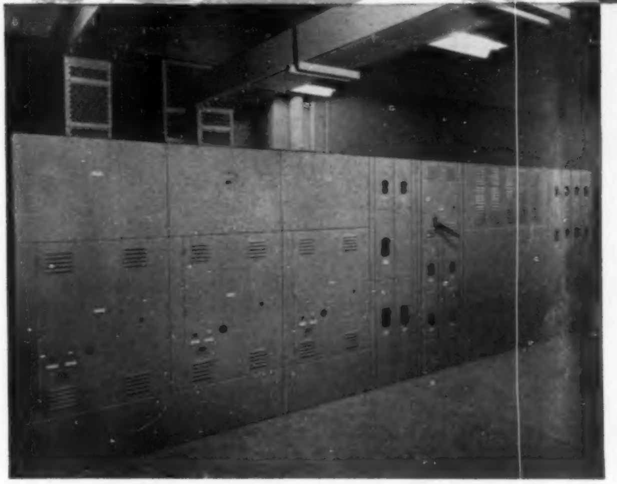
For additional data, ask for item 5089, using the card on page 33.

Killark designs new sealed beam fixture

A NEW "VERSATILE" sealed beam fixture has been designed by Killark Manufacturing Co., Vandeventer & Easton Avenues, St. Louis 13, Mo. These new weather-proof holders have been designed to meet the demand for a relatively narrow distribution of light from a compact source, together with flexibility of aiming, easy maintenance of light output and minimum of cleaning.

The fixtures (Cat. No. SSNB) are completely wired at the factory, and all wiring is completely enclosed. Receptacle arrangement enables the lamp to be rotated for maximum efficiency. Protective lens with channeled rubber seal is fastened in the hinged ring by two clips. The entire

production speeded at Clothcraft plant



Joseph and Feiss Manufacturing Company of Cleveland, Ohio, makers of men's clothes, recently installed FA High Efficiency Feeder Busduct and unit sub-stations in its Clothcraft plant.

Like many others, the company found that this new and modern system of power distribution added substantially to the efficiency and flexibility of plant operations, and provided large savings by reducing power losses to a minimum.

The reason is simple: FA High Efficiency Feeder Duct is the last word in efficient, flexible and economical power distribution from service entrance to distribution center, from transformer to switchboard or from switchboard to distribution center.

Made in standard lengths that fit readily together FA High Efficiency Feeder Duct can be used either indoor or outdoor. Sections can be run vertically or horizontally, up and around pipes and other obstructions and through walls and floors.

Enclosures are light in weight and have perforated sectional covers — top and bottom — for maximum heat dissipation.

FA High Efficiency Feeder Busduct is available in capacities from 600 to 4,000 amps, 600 volts single phase for welder service, three phase for power and three phase, four-wire service for power and light distribution.

For further information about this new and better system of power distribution consult your nearest FA representative listed in Sweet's.

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holder is quickly adjusted to either vertical or horizontal positions, and easily locked in place.

The cooling fins not only help dissipate the heat rapidly, but add to the holders appearance. And, because of this low operating temperature, lamp life is increased.

Constructed of Killark's Alumalloy, the SSNB Series won't rust or corrode, won't rust-stain walls and is always new looking for years of trouble-free service.

For additional data, ask for item 5090, *using the card on page* 33.

Porcelain circlines offered by Markstone

NEWLY DESIGNED California Porcelain Circlines in one and two lamp fluorescent fixtures, specially styled to complement modern homes, have been introduced on the market by the Markstone Manufacturing Co., 2460 W. George St., Chicago 18, Ill.

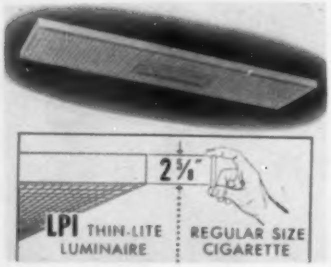
To add distinctive beauty to kitchens, powder rooms, bathrooms and dining areas, Markstone's Porcelain Circlines feature unique, modern shapes crafted of finest California glazed porcelain which will not rust, tarnish, nor discolor and is easy to clean. The fixture's modern motif is further emphasized by the permanent high-fired color combinations: black and white, pink and black, and chartreuse and green. The one and two lamp fixtures are companion pieces having matched design porcelain bases.

For additional data, ask for item 5091, *using the card on page* 33.

LPI introduces line of ultra-thin luminaires

LIGHTING PRODUCTS, INC., Highland Park, Ill., has introduced a new Thin-Lite series of luminaires. Each model in the series has a depth of only 2⅝ inches, and creates a semi-recessed effect, although surface-mounted to the ceiling. Actually the depth below ceiling is essentially the same as that of troffers fitted with dished plastic or glass shields.

The Thin-Lite series by LPI consists of four different luminaires. Two are 49 inches in length (equipped with 48-inch rapid start lamps), and two units are 97 inches long (equipped with 96-inch 430 M.A. lamps). In each length there is a two-lamp model, 12¼ inches wide; and a four-lamp model, 26¾ inches wide. These Thin-Lite luminaires may be mounted end to end or side by side to form an almost unlimited variety of light patterns up to any desired size.

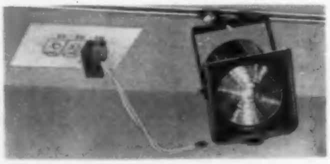


Bolt knock-outs are provided, and the back plate is recessed so that the fixtures can be drawn up solidly against the ceiling. The die-formed Stryon louver panels are metal framed and are secured by LPI's patented floating hinge which cannot be seen from any viewing angle, and which makes lamp holders, wiring and ballasts easily accessible.

For additional data, ask for item 5092, *using the card on page* 33.

Hub offers simplified stage lighting system

THE CONSTANTLY INCREASING importance of creative dramatics and children's theatre activities in the elementary school brings into sharp focus the chronic lack of adequate stagelighting that handicaps these activities, states Hub Electric Co., 2255 W. Grand Ave., Chicago 12, Ill. Hub, however, has investigated this old problem thoroughly and has recently developed a new system of stage lighting for elementary schools, a system that compares favorably with that found on larger stages, yet is attainable with the severely limited budgets that may be available at elementary schools.



The Hub system offers the following advantages: A variety of lighting effects—subject to both switching and dimming controls; initial installation at minimum cost; expansibility with full utilization of original equipment; easy, convenient mounting facilities for lights and other stage equipment without damage to stage walls or ceiling; applicable to existing stages as well as new construction; cost may be shared through pooling of switchboards and lighting; and safe even when operated by untrained students.

For additional data, ask for item 5093, *using the card on page* 33.

Guardian producing high-mounted flood

PRODUCTION of a new high-pole-mounted flood light for service station lighting has been announced by Guardian Light Co., 500 North Blvd., Oak Park, Ill. Incorporating the latest advances in fluorescent lighing techniques, the new 9000 Series luminaire projects an unusually broad long-throw beam of white glareless light over driveways, ramps and approaches.

Designed for use on existing poles, the fixture is smart and modern, without encumbering guys, trusses or supports to detract from its appearance. Watertight housing is of welded, die-formed aluminum, while frames using either Plexiglas or Alba-Lite glass are of extruded aluminum. Specular reflector is formed from Alzak aluminum sheet.

Pole-fitted mounting arm is adjustable from horizontal to 10, 20, 30 or 45 degrees. Unit measures 75 x 16½ x 8⅝ inches, carries union label and is completely wired ready for supply connections in the field. Four 100-watt cool white, rapid-start F100T12/CW/RS fluorescent lamps constitute the light source.

For additional data, ask for item 5094, *using the card on page* 33.

Guth develops new low-brightness louver

A NEW TYPE of low-brightness louver, developed for use with Lite Blox type recessed troffers, was recently introduced by the Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo.

The new louver's high "visual comfort index" is the direct result of two factors—the parabolic design, and the new precision rolled cross-baffles which are designed for excellent diffusion and low brightness.

The Paraflector with cross-baffles provides 35 degree crosswise and 25 degree lengthwise lamp-shielding. They are made of No. 1 reflector aluminum and finished with Alzak after forming for long life and high efficiency.

For easy maintenance, the entire "Center V" and cross-baffle assembly may be removed by pressing the "hold-locks." The assembly is supported on chains for easy relamping.

Paraflector is available for 2/40 watt conventional, rapid-start and slimline operation or for 2/75 watt

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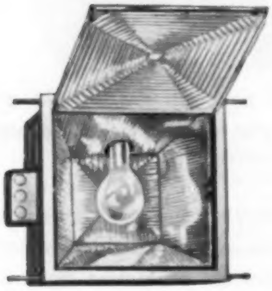
70% USEFUL LIGHT



Some call it wonderful! Actually it is just excellent engineering. Proper reflector and proper lens control light! Any lamp bulb in the average fixture gives about 50% useful light. Put that same bulb in a KIRLIN Fixture with ALZAK GlasSurfaced reflector and a Kirlin wide angle 12" lens and you get at least 70% USEFUL LIGHT!

Why You Profit with Kirlin

- ★ Installation Costs Are Less
- ★ Regular Building Wire Runs Direct To Heat-Insulated Junction Box
- ★ No Carpenter Work is Needed

- ★ Made in all sizes—square or rectangular—and in fluorescent
- ★ Alzak GlasSurfaced Aluminum reflectors
- ★ UL and IBEW labels
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- ★ Spread-type or concentrating lens

You cannot get this winning combination in any other fixture AT ANY PRICE

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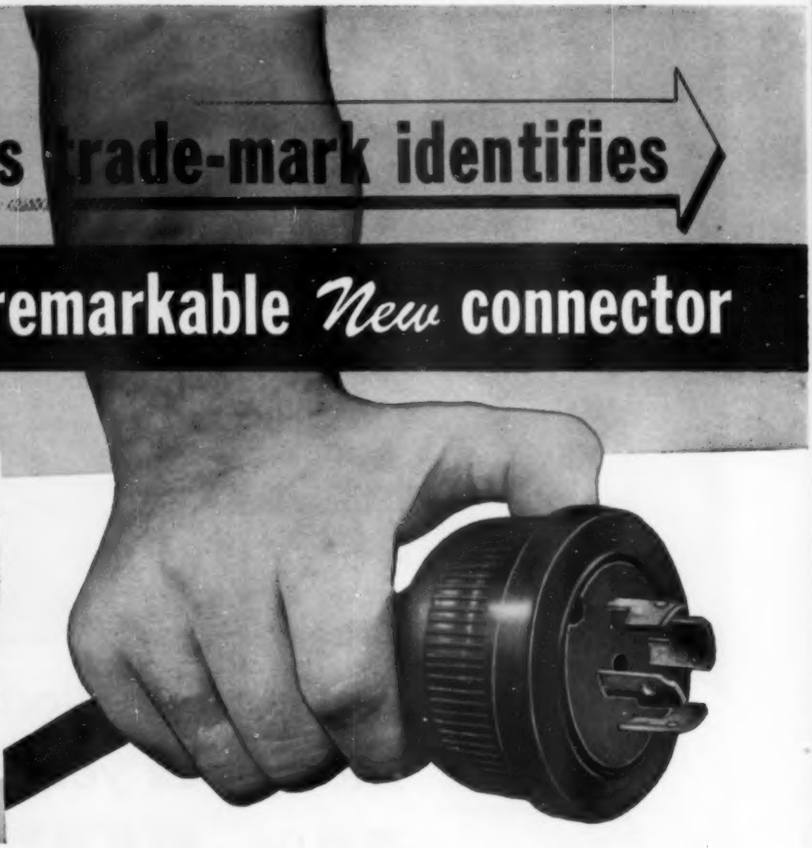
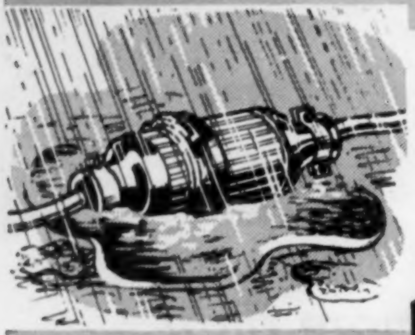
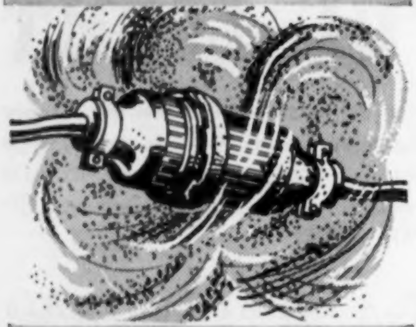
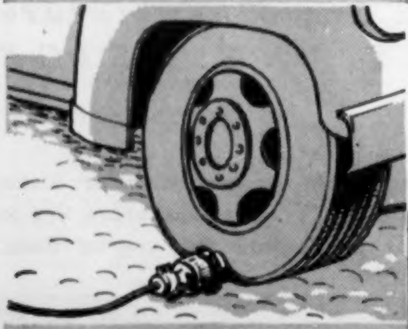




it seals out moisture!



it seals out dirt!



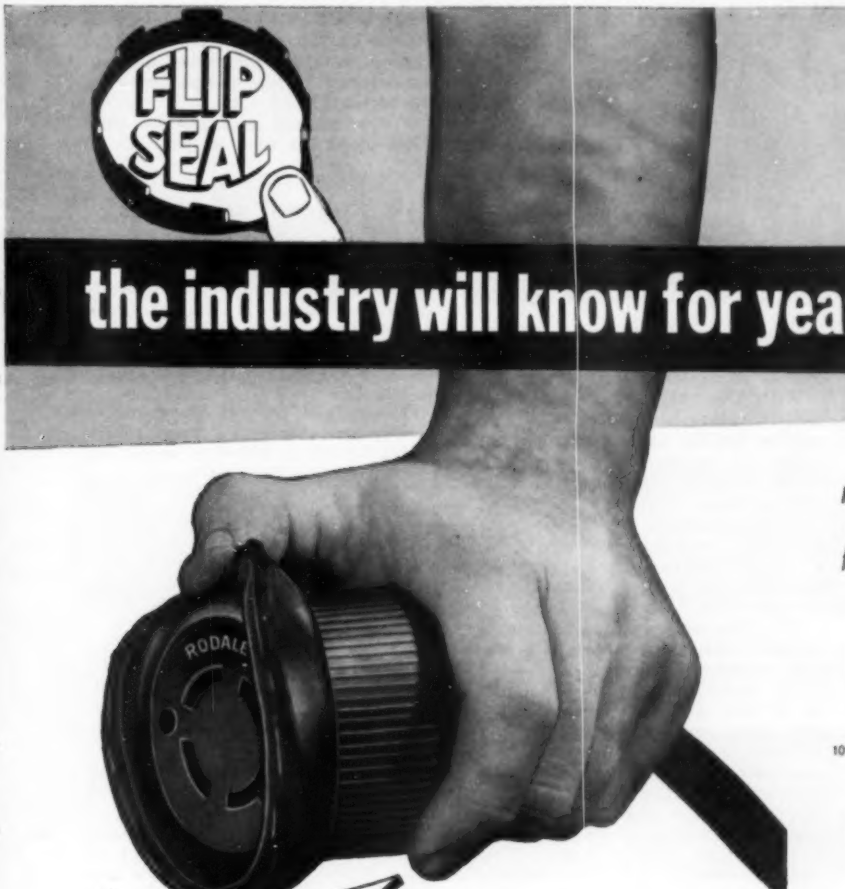
it offers you protection never before possible!

FLIP SEAL, Rodale's brand-new concept in the field of electrical wiring devices brings you features never before possible in any connector!

FLIP SEAL is a heavy-duty, ruggedly-constructed connector which instantly seals out all moisture, dust, dirt and metal particles — and brings you *cushioned protection* against all forms of shock and accidents! It is a complete unit, ready for quick and easy wiring, available in both rubber and neoprene in the widest possible variety of blade arrangements for *any* installation! It is tested to give you guaranteed superior service on any type of job.

FLIP SEAL is priced for the mass market. It is priced so that every portable connector can now be replaced with a FLIP SEAL connector and offer greater protection and greater savings in time and money. FLIP SEAL eliminates

FLIP SEAL is an entirely new principle in wiring device and part of the line of more than 600 wiring devices for home, industry and community manufactured by . . .



the industry will know for years to come!

The flexible rubber lip on the female half of FLIP SEAL overlaps the male cap to provide a positive sealing action. At both ends the cable entrances are also provided with self-sealing actions. FLIP SEAL is sealed at the connector itself and at the cable entrances at all times. The lip also serves as a cushion, assuring full protection always!

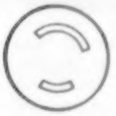
the cost and loss of time that occurs when a faulty, broken connector must be replaced.

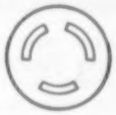
Test FLIP SEAL yourself. Subject this amazing connector to the most extreme tests of abuse — it can be run over with a truck, dropped from a great height, stepped on, submerged in water — and it will continue to do its job!

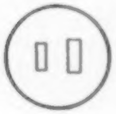
Investigate the innumerable possibilities of this new, low-priced weatherproof connector and you'll start to specify Rodale's FLIP-SEAL

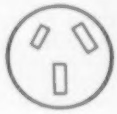
Pat. App. For

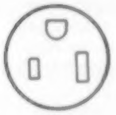
FLIP SEAL is available in both Rubber and Neoprene in the following blade arrangements:

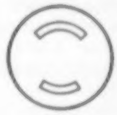

1910
10 Amp, 2 Wire Turn Tyte

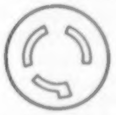

1911
10 Amp, 3 Wire Turn Tyte

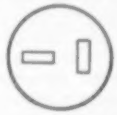

1912
10 Amp, 2 Wire Parallel

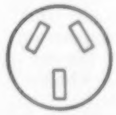

1913
10 Amp, 3 Wire Straight

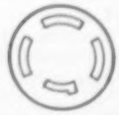

1914
15 Amp, 3 Wire U-Ground


1915
20 Amp, 2 Wire Turn Tyte


1916
20 Amp, 3 Wire Turn Tyte


1917
20 Amp, 2 Wire T-Polarity


1918
20 Amp, 3 Wire Straight


1919
20 Amp, 4 Wire Turn Tyte

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slimline. All electrical apparatus is CBM and UL approved.

For additional data, ask for item 5095, using the card on page 33.

Luminous Ceilings adds Diamond Jubilee series

IN CELEBRATION of the 75th anniversary of Edison's invention of the electric light bulb, Luminous Ceilings, Inc., 2500 W. North Ave., Chicago, Ill., have introduced the "Diamond Jubilee Series" of light fixtures.

The high lighting efficiency and compact streamline design of the new fixture will complement the finest offices, banks, schools, stores, and corridors. The special unbreakable thin translucent corrugated "Lumi-Plastic" bottom and sides offer high light transmission with low surface brightness.

In addition to the important feature of producing an even light that is shadowless and glarefree, the Lumi-Plastic in the new fixture can be easily washed with any detergent. Also, all lamps and component parts are hidden from view. A special combination hinge and latch permits ease of cleaning and relamping by swinging down the "Lumi-Plastic" diffuser frame leaving both hands free to use.

The new fixture is now available in three widths, 16 inches, 28 inches and 40 inches. The respective fixtures use two, four, and six lamps. Lengths of the fixtures are 96⅛ inches, 72⅛ inches, and 48⅛ inches. Depth of all fixtures are 6¾ inches. These fixtures may be used individually or ganged end to end for continuous rows of light.

Instant Start Slimline lamps in choice of four, six, or eight foot lengths provide the illumination which is diffused by the featherweight corrugated "Lumi-Plastic" panels.

For additional data, ask for item 5096, using the card on page 33.

Perfeclite exit light offers two face styles

THE PERFECLITE Co., 1457 East 40th St., Cleveland 3, Ohio, manufacturers of illuminated exit signs and incandescent lighting for commercial and institutional work, are introducing a new, hinged, surface-type exit sign which is adaptable to a wide variety of building requirements.

With the aid of interchangeable parts this one basic die-formed unit can be quickly converted to either single or double face use, and is easily mounted from the top, back, side or from a pendant.

A concealed pivot in the door simplifies re-lamping. All metal parts are finished in hard baking enamels, and are completely rustproof.

Two face styles are available: a hinged metal stencil face with six-inch letters on a fired green or red glass backing, or six-inch letters on a fired ceramic glass panel, in four color combinations.

Perfeclite also manufactures a companion die-formed recessed-type exit unit designed specifically for easy installation and servicing. It is available in the same two face styles as their surface type model.

All Perfeclite signs are Underwriters Laboratories, Inc., approved and comply with the National Electrical Code.

For additional data, ask for item 5097, using the card on page 33.

Luminous ceilings added by Pittsburgh Reflector

A NEW LUMINOUS CEILING is now being produced by Pittsburgh Reflector Co., 410 Oliver Building, Pittsburgh 22, Pa. Known by the brand name of "Luma-Ceiling" the ceiling itself is a combination of white translucent vinyl corrugated for rigidity and supported on extruded aluminum channels combined with standard Pittsburgh fluorescent or slimline strip.

The new "Luma-Ceiling" literally creates a ceiling of light which is soft and diffused, yet can be installed so as to give any required level of illumination. The illumination produced eliminates shadows and sharp contrasts—factors which indicate the wide acceptance of this type of illumination in office buildings, laboratories, libraries, hospitals and similar applications.

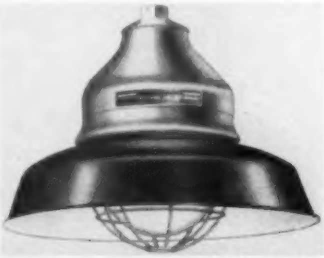
Under normal usage "Luma-Ceilings" are installed over an entire ceiling area of either new or existing construction. However, for special effects only a section or part of a ceiling can be illuminated and incandescent lighting components may be added.

For additional data, ask for item 5098, using the card on page 33.

Pyle-National announces explosion-proof fixture

PYLE-NATIONAL Co., 1354 N. Kostner Ave., Chicago 51, Ill., announces a new type explosion-proof industrial lighting fixture for use in hazardous locations (Class I, groups C and D).

These new fixtures have mogul screw base porcelain lamp receptacles for 300 or 500-watt lamps and augment the Pyle-National line of medium screw base fixtures for 75 to 300-watt lamps.



The construction of the fixtures includes threaded joints except at globe where the flange is ground and clamped against an accurately machined surface by means of a threaded ring. For security and to lock against turning, set screws are provided at all threaded joints.

The housings are fabricated of cast aluminum alloy, and the guards protecting the globes of clear impact-resisting glass, are of cadmium plated steel wire, thus increasing the life and safety of the installation.

The specially designed steel porcelain enameled reflectors are white inside and green outside. Fixtures have an internal Alzak reflector for increased efficiency. All types are available with a choice of porcelain enameled steel reflectors.

For additional data, ask for item 5099, using the card on page 33.

Yard Lites designed for outdoor living

A COMPLETE new line of four Yard Lites and accessories has been introduced by Markel Electric Products, Inc., 145 Seneca St., Buffalo 3, N. Y. These Yard Lites "light up the night for outdoor play or work."

All four Markel Yard Lite units are approved for outdoor use—the entire units are UL approved. Beautifully designed for scientific maxi-

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mum light, taking up to 100-watt bulbs (including the yellow insect repellent bulbs) these units are made of weather-resistant, rust-resistant electrically baked black enamel.

They have pointed posts for easy spearing into the ground. An added accessory is a terrace holder for use on patios and porches. The units come complete with a heavy duty outdoor cord set, and have handy metal clips attached to the post for winding up the cord. Each unit also has double duty handle bars both for beauty and for easy spearing into the ground.

No installation costs are involved with the Yard Lites. The units need only be plugged into any convenient outlet.

For additional data, ask for item 5100, *using the card on page* 33.

Neo-Ray Roto Strip has rotating sockets

NEW LOW COST recessed display lighting is possible with the new Neo-Ray No. 103 Roto strip, which was recently introduced by Neo-Ray Products, Inc., 315 E. 22nd St., New York, N. Y.

Instead of installing individual fixtures, it is now possible to install one channel with either eight, five, three, or two lights to make any length continuous run.

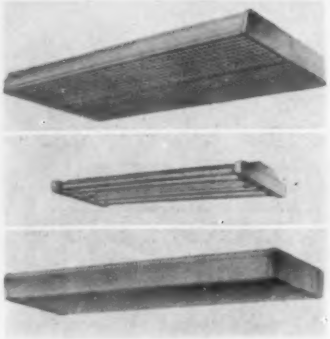
This recessed Roto Strip retains all the features of the surface mounted Roto Strip—built-in rotating sockets that swing 90 degrees in all directions and stay put in any angle. The difference lies in the recessed wiring channel which is out of view.

Adjustable mounting angles are furnished with each strip so that there are no extra parts to buy to install the recessed Roto Strip.

For additional data, ask for item 5101, *using the card on page* 33.

Miller fixtures made 'for modern shopping'

A NEW GROUP of fluorescent lighting fixtures for stores, "Designed for Modern Shopping," is announced by the Miller Co., Meriden, Conn. These new fixtures constitute a simplified approach to the modern store lighting problem in that the needs of nearly all types of stores are filled by three types of fixtures. Further simplification is obtained by making all three fixture types for use with only one type of fluorescent lamp, the Rapid Start, which has the broadest application, and requires no separate starter.



Miller's new Storelites are styled to blend with interior architecture and decor, to enhance the eye appeal of merchandise, and yet be unobtrusive. They are engineered to provide efficient and comfortable illumination, ease of installation and low maintenance.

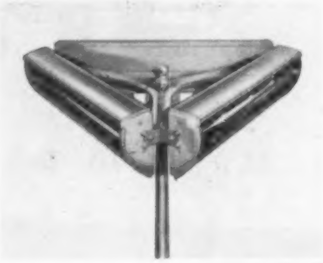
Styled as a group, these new fixtures give lighting a new slim dimension. The Merchant comes in two and four lamp, 48-inch size. Plastic side panels minimize side and bottom contrast: Choice of one-piece Diamond Lucite or one-piece injection molded plastic louver bottom enclosure; highly efficient, comfortable 43 degree - 43 degree shielding. The Suburban has a full one-piece plastic body with aluminum ends, is easy to clean, light, rigid and nonwarping; no sharp corners to accumulate dust. Comes in two and four lamp, 24 and 48-inch lengths. The Supermarketer is a bare lamp type, in two and four lamp, 48 and 96-inch lengths. All models in this group are made for surface or suspension mounting, individually or end to end in continuous rows. All models are individually packed.

For additional data, ask for item 5102, *using the card on page* 33.

L-M adds delta-shaped fluorescent luminaires

A NEW fluorescent luminaire, being manufactured by Line Material Co., 700 W. Michigan St., Milwaukee 1, Wis., offers high illumination but low average brightness. The new luminaire is a delta-shaped unit, designed for parking lots, railroad yards, work areas, or similar applications.

The unit emits an IES Type V light distribution pattern. Each leg, rated at 245-watts, accommodates two 100-watt, six-foot, T12 lamps. The main beam output of one leg is about 4240 candle power and has an average unit brightness of three candle power per square inch. Consequently, the new luminaire provides a soft light that is comfortable to the eye. Like other L-M fluorescent luminaires, this streamlined unit has a brightness level 1/20 the level of conventional small source luminaires having similar light distribution. For more efficient illumination, each lamp has individual reflecting surfaces to control the vertical light distribution. One ballast is furnished for each leg of the delta.



All metallic parts of the luminaire are aluminum, except for non-ferrous fittings. Each cover is translucent plastic which is hinged at the top and latched at the bottom to enable easy connection, relamping and maintenance. Cover gaskets make the luminaires weatherproof and bug-proof.

For additional data, ask for item 5103, *using the card on page* 33.

New post lantern made of plastic

A MODERN PLASTIC adaptation of the picturesque colonial post lantern has been announced by Plymouth Industrial Products, Inc., Plymouth, Wis. This firm has successfully simulated a wrought iron masterpiece in a new thermoplastic material (clevelon) that resembles wrought iron and can be painted as desired.

Made to a full eight-feet tall, the new post lantern is produced in four pieces which can be easily assem-

Every foot of RoZone-RoPrene power cable on these reels was corona level tested to assure dependable operation in one of the nation's biggest steel mills. This standard factory testing procedure is one of the big reasons why Rome insulated cables are specified for many critical jobs.

Rome's Corona-Ionization test gives *extra* protection

Specially designed ionization detector for routine factory use measures corona level of all high-voltage rubber insulated cables.

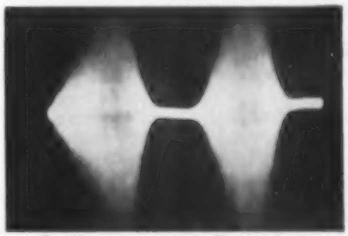
Perhaps you have had the costly experience of installing a reputably high-quality rubber insulated power cable manufactured by a reliable supplier . . . only to have it fail prematurely for apparently no good reason.

Yet, one of the major possible reasons could be . . . internal ionization. This hazard is caused by electrical breakdown of air within the insulation, or especially where it has not been closely fitted to the conductor surface or shield.

Several destructive effects may result from ionization. Included are possible ozone cutting, reduced dielectric strength, and a substantial increase in dielectric losses. *And there is no way of detecting ionization through the visual, physical and routine electrical tests usually applied to cables.*

But you can depend on maximum protection against ionization when you specify Rome power cables. *Every foot of Rome insulated cable, rated at 3000 volts or over, is thoroughly tested by a specially designed ionization detector.* This instrument accurately measures the corona level of the entire cable to assure the ionization voltage exceeds the intended operating voltage of the cable.

This is one more extra step in Rome Cable's standard manufacturing procedure that assures dependability. This completely *NONDESTRUCTIVE* method of testing was developed by Rome Cable engineers and was first described in AIEE paper 48-198, "The Measurement and Investigation of Ionization Level of Rubber Insulated Cables," presented in August, 1948.



Oscilloscope trace indicates ionization within an insulated cable.

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bled, wired and set in place with a minimum of effort.

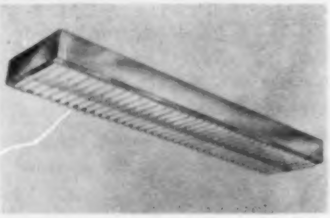
Besides its traditional beauty, the plastic lantern is said to be highly durable, rustproof, weatherproof and can be purchased at about one-third the cost of its original.

For additional data, ask for item 5104, *using the card on page* 33.

Shallow fluorescent unit announced by Smithcraft

A NEW DEVELOPMENT in fluorescent lighting fixtures has been introduced by Smithcraft Lighting Division, Chelsea 50, Mass. Called the "Sheraton," this modern and distinctive fixture is only 3¼ inches in depth. As a result, the Sheraton is ideal for low-ceiling school rooms and offices.

The Smithcraft Sheraton incorporates translucent plastic sides to softly illuminate the adjacent ceiling, and a one-piece steel louver with a cut-off of 30 degrees crosswise, 45 degrees lengthwise. The fixture is available for two or four 40 watt rapid-start, bi-pin lamps (in four-foot and eight-foot housings), as well as two or four 48-inch or 96-inch Slimline lamps.



For additional data, ask for item 5105, *using the card on page* 33.

Quantalite brings out natural color, texture

FLUORESCENT LIGHT that brings out the natural color and texture of objects exposed to it is produced by a new type shield for fluorescent fixtures. Developed by Quantalite, Inc., and distributed by Plastic Illuminating Co., Inc., 101 Park Ave., New York 17, N. Y., the new shield is made of translucent Bakelite rigid vinyl sheet printed with selected colors and formed in a diamond-shaped corrugation.

Produced in shapes and sizes to fit all standard fixtures, Quantalite color-correcting shields considerably widen the range of applications for cool, abundant, economical fluorescent light. They facilitate merchandising of any product in which appearance is an important factor, such as foods, textiles, clothing, furnishings, cosmetics and decorative materials.

Reducing glare while maintaining natural color, Quantalite shields permit any desired quantity of illumination without irritating occupants' eyes, contributing to the efficiency of workers in factory or office.

Light in weight, Bakelite rigid vinyl sheet will not shatter when dropped, and its flexibility makes Quantalite shields easy to snap in or out of fluorescent fixtures with either straight or curved surfaces. Bakelite rigid vinyl sheet retains its shape and color, and the non-flammable Quantalite shields can be easily cleaned with a damp cloth or by simply dipping in water.

For additional data, ask for item 5106, *using the card on page* 33.

Wakefield Omega-Plex available with louvers

ONE IN THE SERIES of the Wakefield Geometrics, manufactured by the F. W. Wakefield Brass Co., Vermilion, Ohio, Omega-Plex is a complete unit ready for on-surface mounting. The ballasts and lampholders are in an individual metal housing that provides hook-on suspension points for the Wakefield Rigid-Arch Diffuser. This diffuser is molded with a sweeping arch, slightly higher in the center than at its edges, giving greatly improved rigidity. It has a non-specular, matt finish which minimizes possible reflected glare from outside the building. Omega-Plex is also available with louvers.

Omega-Plex is mounted directly on existing ceiling, with no required structural changes. The unit may be used individually, or combined in an unlimited variety of lighting designs. Width dimensions are to the exact inch module, for precise coordination of various Omega-Plex sizes with other building materials.

Louvers and the Rigid-Arch Diffuser are metal framed for increased strength, swing down and lift out for maintenance.

Omega-Plex is available in two by two, two by four, one by four, and four by four foot sizes.

For additional data, ask for item 5107, *using the card on page* 33.

Metalcraft announces new luminaire series

"METEOR" AND ASTRALITE," two new series of modern shallow Fleur-O-Lier luminaires have been announced by Metalcraft Products Co., Mascher and Lippincott Sts., Philadelphia 33, Pa., manufacturers of Metco fluorescent fixtures.

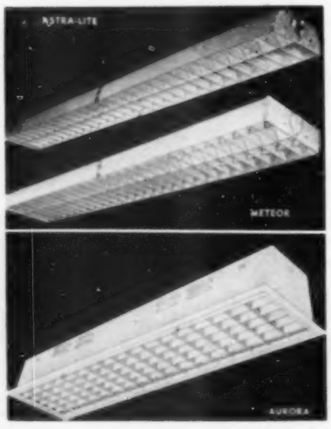
The Meteor series utilizes unusual simplicity of design to create high lighting efficiency at economical cost in schools, offices and stores.

The Astra-Lite series is designed to add architectural grace to installations in commercial institutional and industrial installations.

Design of both of these new fixtures is marked by the extremely shallow body, which measures only 4½ inches overall, including the louver assembly and ballast.

Both Meteor and Astra-Lite are available in general diffuse, direct and semi-direct types, slimline and rapid start, two and four lamp, in four, six, and eight foot lengths. Side shielding is of metal or plastic. Louvers are standard equipment; Astra-Lite is also designed for installation as an open bottom luminaire without louvers. Both luminaires are complete for either individual or continuous row installation, with no extra parts required.

Louvers are designed for removal and replacement from a single ladder position. They are held in position by means of end plate extrusions and captive-type thumb screws, and



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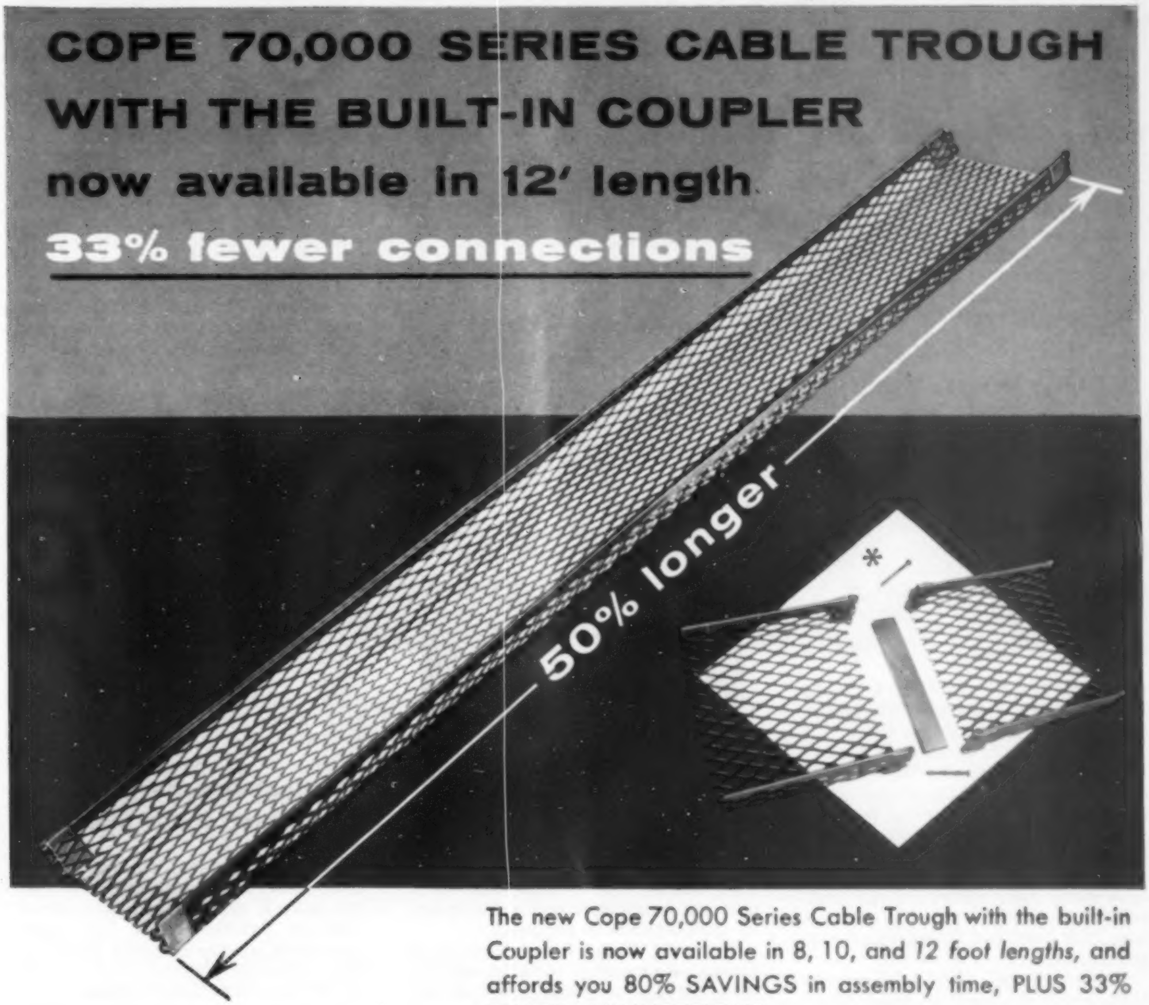

The new Cope 70,000 Series Cable Trough with the built-in Coupler is now available in 8, 10, and *12 foot lengths,* and affords you 80% SAVINGS in assembly time, PLUS 33% FEWER CONNECTIONS.

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Shreveport, La. Williamson Sales Co., P. O. Box 1223

are suspended on safety chains for easy handling during maintenance operations.

Constructed of 18 and 20 gauge metal, these luminaires have a permanently bonded high reflectance finish, with a minimum reflectance factor of 86 per cent.

Accessories include top reflectors and spot and connector boxes.

For additional data, ask for item 5108, using the card on page 33.

Revere Electric redesigns narrow beam floodlights

THE REVERE No. 7140, 300-500 watt, and the No. 7190, 750-1000 watt lines have been redesigned using a one-piece aluminum housing casting providing simplicity of design and more efficient operation. This announcement was made recently by Revere Electric Manufacturing Co., 6009 Broadway, Chicago, Ill.

These units are completely weatherproof, the wire entering through a squeeze bushing. The narrow beam floodlights have a focusing mechanism. Available with clamp or five spring toggle hinged rings with clear, stippled, or ribbed lens for maximum light control, these units are for crossarm or pole top installation. Flat base and clamp mountings are available.

For additional data, ask for item 5109, using the card on page 33.

Sylvania introduces new wall-to-wall lighting

A NEW SYSTEM of wall-to-wall lighting, providing a three-way functional treatment of beauty, light, and sound, is announced by Sylvania Electric Products, Inc., Salem, Mass. The new system, known as the Sylvan-Aire, incorporates both light and sound control.

The Sylvan-Aire system provides architectural beauty by means of a continuous wall-to-wall corrugated white plastic ceiling, which also is the source of soft, over-all lighting. Through the use of spaced V-shaped "Sono-Wedges" lined with thick glass-fiber pads, noise is deadened and disturbing sounds are reduced to comfortable levels.

Because of the flexibility and ease of installation engineered into its design, the Sylvania Sylvan-Aire system of area illumination is particularly well adapted to meet the problem of creating a "new look" in store and office areas where the ceiling is cluttered with pipes and other service devices. While in the past it has often been too costly to conceal such equipment, particularly where ready access to such facilities might be required, the Sylvan-Aire system permits quick access to service facilities without the necessity of destroying any of the finished structure.

For additional data, ask for item 5110, using the card on page 33.

Prescolite adds indirect luminaire to fixture line

ANOTHER ADDITION to the ever expanding line of lighting fixtures manufactured by Prescolite Manufacturing Corp., 2229 Fourth St., Berkeley 10, Calif., is their new Indirect Luminaire.

This ring-type fixture is ideal for lighting schools, stores, hospitals, and offices where high efficiency, uniform brightness and a minimum of maintenance is required.

The new Prescolite fixture is of sturdy construction (no spot welds), with all the ring edges rolled for added strength.

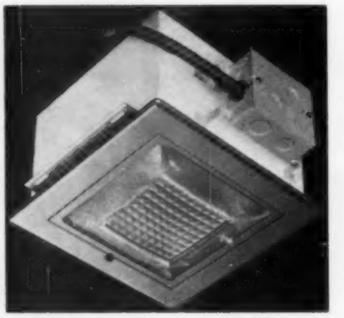
The fixture available in either pendent or ceiling type units for use with 300 to 500 watt silvered bowl incandescent lamps. Pendant units come with patented "hang-straight" assembly which allows a 52 degree latitude of swing for use on slope ceilings.

Standard finish of the Prescolite Indirect Luminaires is matte-gray.

For additional data, ask for item 5111, using the card on page 33.

Sunbeam offers new recessed fixtures

A NEW SERIES, No. 60101-D, of recessed, incandescent lighting fixtures has been developed and introduced by Sunbeam Lighting Co., 77 E. 14th Place, Los Angeles 21, Calif. These units are especially suitable for quality lighting of commercial interiors.



The units feature a smooth, silver-toned trim. The trim is made in one piece, die-formed and with no weld joints. The drop-type hinge bottom lens frame opens by gravity at the touch of the finger and locks automatically when closed. Metal clips hold the lens in vibration-proof position. Adequate knockouts are provided for various standard installation conditions.

This series of Sunbeam recessed, incandescent fixtures is available in shallow or deep, narrow or wide sizes, taking 150 to 300 watt lamps. They are also available unwired or prewired with a junction box and may incorporate many special features such as top servicing and night light.

For additional data, ask for item 5112, using the card on page 33.

Westinghouse develops fluorescent street light

SAFETY AND VISUAL comfort at the street level for shoppers and motorists alike is stressed in a new street lighting fixture which has been developed by the Lighting Division, Westinghouse Electric Corp., 1216 W. 58 St., Cleveland 1, Ohio.

By means of an adjustable mounting bracket, the light may be set horizontally or tilted to any angle between 20 and 30 degrees This permits "directing" the light's greatest intensity towards a desired area instead of having wasted back lighting such as along parkways where only the road itself needs lighting.

Westinghouse engineers pointed out that the new fixture will lead to reduced glare and better vision on roadways, while at the same time providing more light over a wider area. This broad light pattern, which also may be applied in shopping districts, will eliminate the hazardous "black-out" areas along present parkways and city streets.

The upper hood of the fixture, which is about six feet long, is made of a special colored laminated fiber

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glass which will require no paint maintenance as its color is permanent. It is corrosion resistant and is sealed against insects, dirt and water. Four 72-inch fluorescent lamps will be used in each fixture.

These Westinghouse-developed lamps are designed to avoid substantial drop off of illumination through a range of temperatures from 30 degrees below zero to 80 degrees above.

For additional data, ask for item 5113, *using the card on page* 33.

Outdoor wall Domelite introduced by Teal

TEAL CORP., 14 Cordier St., Irvington, N. J., manufacturers of outdoor lighting equipment, have introduced a new weatherproof wall mounting lighting fixture.

The Outdoor Domelite, one of a series of six fixtures, is particularly designed to effectively illuminate entrances, garage driveways, carports, yards, etc.

The inside of the 12 or 14-inch diameter aluminum dome reflector is finished in high reflectance white which reflects the light downward where it is required.

The 18-inch arm is attached to a cast aluminum flange for attaching to a three or four-inch or gem box and is supplied with a weatherproofing gasket. The fixture is ruggedly constructed and is finished in durable black wrinkle.

For additional data, ask for item 5114, *using the card on page* 33.

Nepo pole top adapter economical to install

MODERNIZATION of obsolete pole lighting equipment is easy and economical with the new pole top adapter system announced by Nepo Manufacturing Co., 6025 No. Keystone Ave., Chicago 30, Ill.

Designed to fit atop any standard two-inch to four-inch diameter pole, this Nepo unit, made of special cast aluminum alloy and extruded aluminum arms, supports two mercury vapor transformers and two luminaires.

The unit is furnished complete with poles or for existing poles. Interchangeability of parts makes it possible to provide either a single arm unit or a twin unit from the same basic castings.

For additional data, ask for item 5115, *using the card on page* 33.

Area island lights ideal for recreation

A NEW RECREATION area island light has been announced by Magni Flood, Inc., 38 N. Second Ave., Mt. Vernon, N. Y. The new unit features 24 gauge steel construction with a 16 inch diamter, porcelain vitreous enamel, corrosion resistant, reflector.

The unit is built for beauty as well as strength and is available in red, green, blue and white. The manufacturer states that other colors are available upon request.

Installation and wiring for this unit is simplified. The medium base lamp burns down, and the entire unit slips on to a 1½ inch or 2 inch pipe. The unit is designed for greater strength and longer lamp life.

For additional data, ask for item 5116, *using the card on page* 33.

Lightolier introduces three new Claremonts

LIGHTOLIER, INC., 346 Claremont Ave., Jersey City 5, N. J., has announced the addition of three new designs to its popular "Claremont Collection" of deluxe lighting fixtures, first introduced a year ago.

The three new designs—like the earlier ones—represent a tasteful compromise between elaborate decoration and cold, sterile modern in lighting design. Elegant, yet warm in feeling, they are appropriate supplements to the basic collection.

Through a special glass-making technique, the fixtures give off a decorative, pale golden glow. Seven differently colored groups of microscopic beads in the glass break light into sparkling champagne fragments and endow the glass with a truly gem-like fire.

Among the three new designs is a round double bowl fixture (No. 4234), illustrated, measuring 23 inches in diameter, and described as the largest fixture Lightolier has ever produced. The fixture has a six-inch coloured lens and takes a 300 watt bulb.

Another new Claremont places a round bowl within a square bowl (No. 4240), and the third new addition is a wall bracket, of simple, understated shape (No. 4241).

For additional data, ask for item 5117, *using the card on page* 33.

Marco recessed fixtures use Holophane Controlens

A NEW SERIES of recessed lighting fixtures, utilizing the Holophane prismatic lenses and prismatic glass reflectors, has been announced by Marvin Manufacturing Co., 1826 N. Sheffield Ave., Chicago, Ill.

Marco's introduction of the patented "EZ Relamp" feature and the Marco "Gravity Hinge" makes its equipment unique. Under all installation conditions, the Marco Holophane equipped line can be relamped from the floor with a lamp changer.

This new series also utilizes the engineering installation features of the standard Marco line—the patented Junction Box and Bar Hangers.

For additional data, ask for item 5118, *using the card on page* 33.

Chrome plated holder announced by Steber

AN ADDITION to their Steberlite line has been announced by the Steber Manufacturing Co., Broadview, Ill. The new unit—S-500—is designed to accommodate medium base sealed beam PAR-38 and R-40 lamps.

The socket housing, articulated adjusting joint, and mounting arm (threaded ½-inch) are triple chrome plated. Each unit is furnished with a black "Hycar" rubber lamp gasket and is equipped with high grade porcelain socket, factory wired with weatherproof leads. Mounting flanges for single-lamp, two and three-lamp installations are finished in rich black.

The black gasket and mountings present a striking and attractive appearance. Bulletin No. 1076 illustrating and describing these Steber products is available upon request.

For additional data, ask for item 5119, *using the card on page* 33.

Mitchell adds series of commercial luminaires

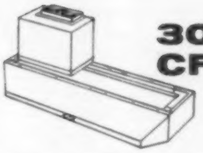
A NEW SERIES of commercial luminaires specially designed for low fixture-ceiling contrast and featuring low surface brightness, a streamlined contour and an ultra-shallow

THE ANSWER

appearance has been introduced by

ONLY TRADE-WIND GIVES YOU WIDEST SELECTION OF KITCHEN VENTILATORS AND HOODS

from $71.65 list . . . up

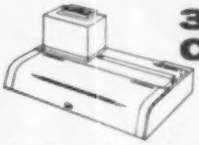


300 CFM

Trade-Wind Model **1501** Ventilator plus 39" or 42" Stationary Stainless Steel Hood –

$71.65 *LIST*

Add $11.00 for Copper

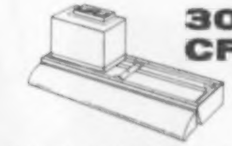


300 CFM

Trade-Wind Model **1501** Ventilator plus 30" to 42" Expansion Hood, Stainless Steel or Copper –

$83.40 *LIST*

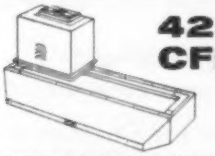
Add $2.95 for 42" to 54" Hood



300 CFM

Trade-Wind Model **1501** Ventilator plus 39" or 42" Fold-Under Hood, Stainless Steel –

$91.65 *LIST*

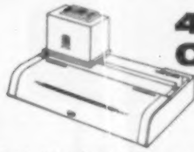


425 CFM

Trade-Wind Model **2501** Ventilator with 4 speeds, plus 39" or 42" Stationary Stainless Steel Hood –

$91.20 *LIST*

Add $11.00 for Copper

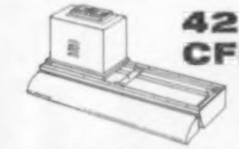


425 CFM

Trade-Wind Model **2501** Ventilator with 4 speeds, plus 30" or 42" Expansion Hood, Stainless Steel or Copper –

$102.95 *LIST*

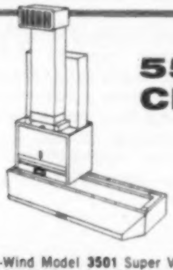
Add $2.95 for 42" to 54" Hood



425 CFM

Trade-Wind Model **2501** Ventilator with 4 speeds, plus 39" or 42" Fold-Under Hood, Stainless Steel –

$111.20 *LIST*

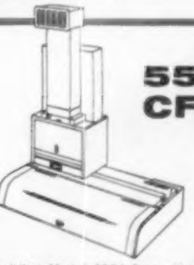


550 CFM

Trade-Wind Model **3501** Super Ventilator with 4 speeds, plus 39" or 42" Stationary Stainless Steel Hood –

$142.25 *LIST*

Add $11.00 for Copper

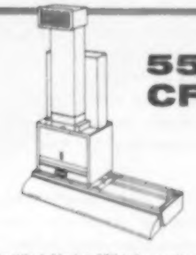


550 CFM

Trade-Wind Model **3501** Super Ventilator with 4 speeds, plus 30" to 42" Expansion Hood, Stainless Steel or Copper –

$154.00 *LIST*

Add $2.95 for 42" to 54" Hood



550 CFM

Trade-Wind Model **3501** Super Ventilator with 4 speeds, plus 39" or 42" Fold-Under Hood, Stainless Steel

$162.25 *LIST*

BUILT-IN BACK DRAFT DAMPERS

These efficient dampers are built into all models and eliminate buying an extra accessory.

FILTER GRILLES

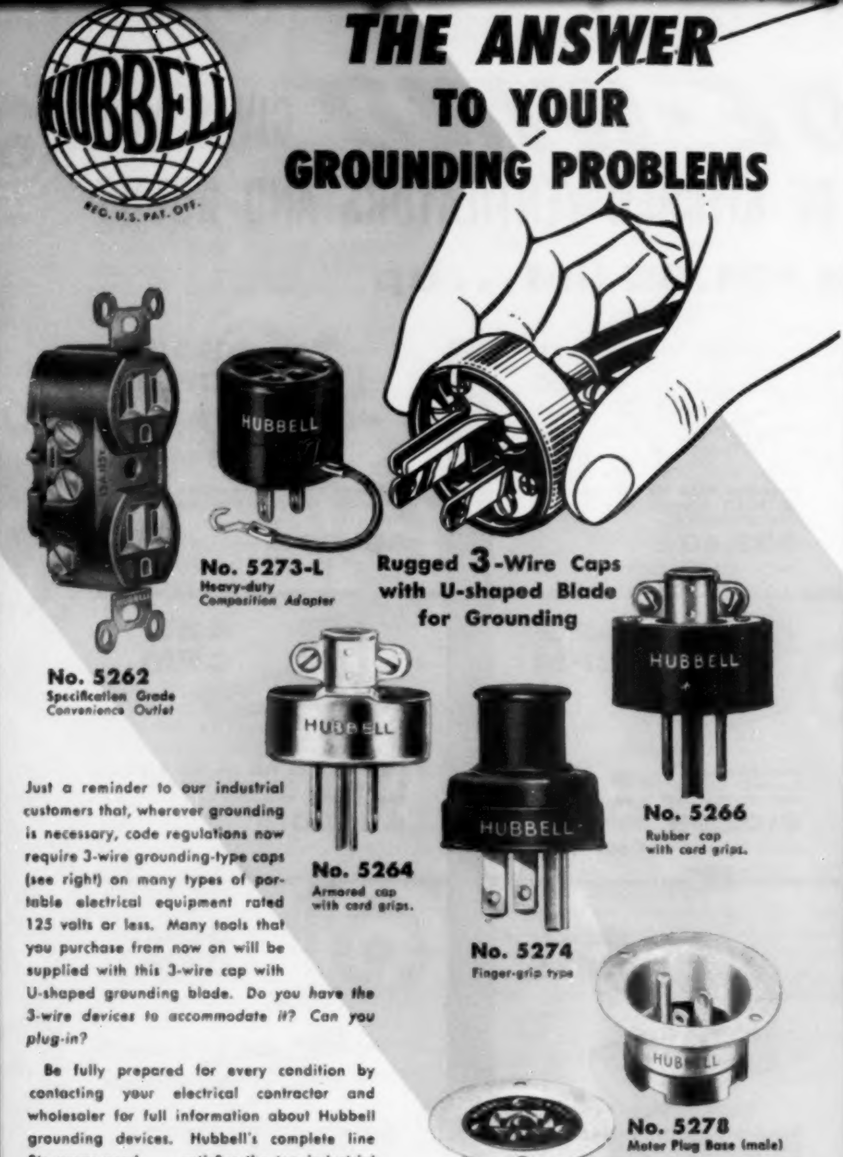
Designed especially for cabinet installation of Model 1501 and 2501. $7.50 List.

HOOD LIGHT

[illegible] light for use with [illegible] [illegible] List.

Trade-Wind Motorfans, Inc.

7755 PARAMOUNT BLVD., DEPT. ES, RIVERA, CALIFORNIA



THE ANSWER TO YOUR GROUNDING PROBLEMS

No. 5262
Specification Grade Convenience Outlet

No. 5273-L
Heavy-duty Composition Adapter

Rugged 3-Wire Caps with U-shaped Blade for Grounding

No. 5264
Armored cap with cord grips.

No. 5274
Finger-grip type

No. 5266
Rubber cap with cord grips.

No. 5278
Motor Plug Base (male)

No. 5279
Motor Plug Base (female)

No. 5252
Competitive grade convenience outlet for residential applications.

Just a reminder to our industrial customers that, wherever grounding is necessary, code regulations now require 3-wire grounding-type caps (see right) on many types of portable electrical equipment rated 125 volts or less. Many tools that you purchase from now on will be supplied with this 3-wire cap with U-shaped grounding blade. *Do you have the 3-wire devices to accommodate it? Can you plug-in?*

Be fully prepared for every condition by contacting your electrical contractor and wholesaler for full information about Hubbell grounding devices. Hubbell's complete line fits every need . . . satisfies the top industrial standard for rugged, dependable, and versatile wiring devices.

Also a complete line of 250-volt rated grounding devices. Literature on request.

14HH55

Be sure to visit us at the NAED Convention
Conrad Hilton Hotel, Chicago, Ill., May 22-25
HUBBELL BOOTH No. 146 . . . or visit our hotel suite.

appearance has been introduced by Mitchell Mfg. Co., 2525 N. Clybourn Ave., Chicago.

Mitchell's plastic-shielded "Lume-Glow" series includes eight luminaires and the matching two-lamp and four-lamp units are available in four- or eight-foot lengths. Lamp types which may be used are T-12 medium bi-pin, T-12 Rapid Start and T-12 Slimline.

Recommended for pendant mounting, the units are constructed with a one-piece, die-formed 20-gauge steel body channel finished in heat resistant baked white enamel.

The diffusing shield is of "Evenglo" translucent extruded Polystyrene in four-foot lengths. It consists of two half sections which are inserted in the center rail and locked into special latches at the tops of the end plates. Units may be mounted either individually or in continuous rows.

For additional data, ask for item 5120, *using the card on page* 33.

Handy floodlight aluminum constructed

A NEW, HANDY floodlight of rugged aluminum construction has been announced by General Electric's Outdoor Lighting Dept., Lynn, Mass.

Designated the L-66, the inexpensive unit is designed for work and recreational activities in home, farm, and industrial areas.

Equipped with ribbed trunnion bracket that permits 360 degree vertical or horizontal rotation, the floodlight utilizes a 200-watt general service lamp that throws a powerful 946-candlepower beam.

Diversified applications for the L-66 range from after-dark gardening and home maintenance to plant security. Farmers will find the new floodlight an important accessory for night chores, and plant owners will improve outdoor working efficiency by installing the unit in loading areas and rail heads.

The G-E floodlight weighs four pounds and is provided with a large aluminum base suitable for portable use or permanent mounting. It is

After TWO years of field-testing, here's the

NEW IMPROVED TIREX CORD

- *It's more flexible than ever before!*
- *It has greater pliability when cold!*
- *It's much easier and faster to machine-strip!*

New TIREX CORD retains its Selenium Neoprene Armor for added toughness.

SIMPLEX TIREX

New TIREX CORD is still cured in lead to make it smoother, denser and more uniform.

Simplex

TIREX

The New TIREX is the most supple, limber TIREX Cord ever made!

Find out more about the New TIREX CORD. Write to the address below for Folder 1022 today.

SIMPLEX WIRE & CABLE CO., 79 Sidney St., Cambridge 39, Mass.

equipped with a six-foot neoprene-jacketed cord and molded plug.

Other features include a heat- and weather-resistant glass lens, snap-ring clamping band for convenient lamp access, porcelain-based socket that maintains proper lamp focus, and knockouts in base to permit mounting on 3¼ and four-inch outlet boxes.

For additional data, ask for item 5121, using the card on page 33.

Smithcraft redesigns Louverlite fixtures

THE SHALLOW and slim look in lighting fixtures has been achieved in the Louverlite, recently redesigned and developed by the Smithcraft Lighting Division, Chelsea 50, Mass. Only slightly more than three inches in depth, with clean, trim lines, the Louverlite is ideal for use wherever beauty and even, comfortable and direct illumination is desired.

The Louverlite is available in four and eight foot units for two or four T-12 430-MA lamps. Also, the unit may be purchased with steel or translucent plastic side inserts which makes for a pleasing side-spill of light. The Louverlite is also available for two or four Rapid Start Bi-Pin.

The Louverlite Slimline is mounted easily individually or in continuous rows, and may be surface or pendant mounted. A simple coupling conceals wiring and assures true alignment, and for continuous mounting an enclosed wireway is provided.

Relamping and cleaning of this luminaire is no problem. Louvers are hinged from either side and may be completely removed without the use of tools. The ballast, concealed in the V-section of the louver, is easily accessible by opening the louver.

For additional data, ask for item 5122, using the card on page 33.

Westinghouse adds M-H1 to mercury-vapor lamps

"DELUXE GOLDEN WHITE" is the latest color in mercury-vapor lamps to be developed by the Westinghouse Lamp Division, Bloomfield, N. J. The new 400-watt lamp is known as the type M-H1 and the company states that it will extend the application of mercury lighting into the commercial field.

The deluxe lamp uses the same inner phosphor coating as the present color-corrected lamp to complement the blue output of the mercury-vapor light, and a ceramic coating is baked on the outer bulb that filters out some of the green and yellow light. The resultant improved color quality of the light greatly enhances the appearance of the complexion and all colored objects.

The deluxe lamp uses a larger bulb than the standard 400-watt fluorescent-mercury lamp. For best results, fixtures such as those developed for the 1000-watt fluorescent-mercury lamp should be used. The lamp will operate with standard 400-watt ballasts.

For additional data, ask for item 5123, using the card on page 33.

Moe Light announces new Decorator line

THE ADDITION of an entirely new selection of contemporary light fixtures to their line has been announced by the Moe Light Division of Thomas Industries, Inc., Fort Atkinson, Wis. The new fixtures, called the "Decorator" line, are styled in keeping with the increasingly popular "spacious" contemporary trend in home decorating.

Modern in design, the lights are available in three general types: contemporary ceiling-mounted plastic "bubble" lights; pull-down reel types in both "bubble" and reflector shade designs; adjustable plastic shaded wall-mounted plug-in fixtures—all at relatively low prices.

The "Decorator" line is currently being promoted on a national scale by Moe Light. Ads in national magazines, featuring the "Decorator" line, will tie-in with Moe Light's Inspiration Lighting program.

For additional data, ask for item 5124, using the card on page 33.

G-E develops new 200-watt flood lamp

DEVELOPMENT of a new 200-watt PAR-46 flood lamp of the all-glass sealed-beam type has been announced by General Electric's Lamp Division, Nela Park, Cleveland, Ohio.

Equipped with a side-prong base, it is a companion to the spotlight lamp of the same size and type introduced by G-E in 1949.

The new 200-watt flood is designed to produce a controlled beam of light substantially rectangular in pattern. It is described as a "precision" lamp, engineered to the requirements of display and other kinds of floodlighting needs. Its glass is said to be thermal shock-proof. G-E engineers point out that the new lamp produces a "narrow to medium" distribution of light from a compact source. Other advantages claimed for the lamp are: a smooth beam; flexibility of aiming; and good maintenance of light with a minimum need for cleaning.

The new 200-watt PAR-46 has a maximum all-over length of four inches, a life rating of 2,000 hours, and is designed for use in any burning position.

For additional data, ask for item 5125, using the card on page 33.

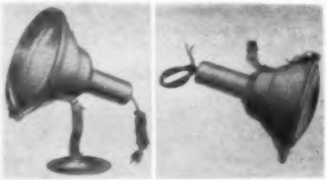
General purpose floodlight offers versatile mounting

A NEW CROUSE-HINDS general purpose floodlight, type MDB-10, is available now either with flat base or suspension assemblies, and may be installed as easily in grounds, lawns or turf as on elevated metal arm brackets.

The flat steel base, used for ground locations, has a diameter of six inches and two mounting holes spaced to fit a four-inch outlet box and a one-and-a-half-inch knockout. For temporary mounting, a steel ground stake is available.

Unlike the steel flat base, which is equipped with four feet of two-conductor cable with plug, the aluminum suspension base has a half-inch conduit thread and is equipped with two feet of cable with terminals. These terminals are to be attached to the terminal block of a Crouse-Hinds type GPT cross arm for installation on poles.

Formed from lightweight sheet aluminum (net weight with flat base, 4¼ pounds; with suspension base, 3½ pounds), the new floodlight is 11 and ⅞-inches long and 11 and ⅛-inches across the lens face. According to Crouse-Hinds, with a 100-degree etched Alzak finish reflector, the new floodlight delivers a 58.5 per cent beam efficiency. When equipped with 35-degree polished Alzak finish reflectors, beam efficiency ranges between 42.9 and 48.4 per cent. Either 300- or 200-watt bulbs are used for general lighting service, but colored lenses take only 200-watt lamps.



Tools are unnecessary to relamp the MDB-10 lighting fixture since a lamp is removed and replaced by unlatching a single clamp and opening the hinged door. This door, die-formed from aluminum channel frame, is weather-proofed by means of a heavy extruded rubber gasket that seals the heat resistant glass lens to the housing.

For additional information re-

Photograph of Mr. Henry F. Barksdale
Whitehead Electric Co., Atlanta, Georgia

"Lighting fixtures designed with the contractor in mind"

Read what Mr. Barksdale says about Day-Brite fixtures:

"For the past 12 years our company has installed Day-Brite fixtures throughout the state of Georgia and in the Southeastern area. Always, we have found that our final net profit on a Day-Brite job was most satisfactory. All in all, I'd say that Day-Brite fixtures are designed with the contractor in mind. The ease and speed with which we can install them means a lot when a completion date has to be met."

Mr. Barksdale is one of hundreds

Mr. Barksdale is not alone. He is one of hundreds of electrical contractors throughout the United States who are sold on the through-and-through quality of Day-Brite fixtures, on their overall performance in providing the right light for the right job, on design features that save installation time.

Details that count

This time-saving Adjustable "A-J*" Hanger is just an instance of Day-Brite's attention to details that help the contractor. It is the easy, low-cost way to reduce installation time on hard-to-work-with, uneven ceilings. Swivel fitting and 1⅛" hand-operated vertical adjustment let you lay in your fixture run, trim it up later... No field assembly of screws, bolts or locknuts is required. "A-Js" give you a quick simple, foolproof way to save time, increase profit.

Other Time-saving Day-Brite Fittings:

Hydee** Hangers, Sliding Clamp Hanger Fittings, Twin-stem Hangers (8" and 24" lengths), Ice-Tong Hanger Clamps.

Day-Brite Lighting, Inc., 5435 Bulwer Ave. St. Louis 7, Mo.... In Canada, Amalgamated Electric Corp., Ltd., Toronto 6, Ont.

SEE YOUR DAY-BRITE DISTRIBUTOR

"DECIDEDLY BETTER"
DAY-BRITE
Lighting Fixtures

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5426

NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT

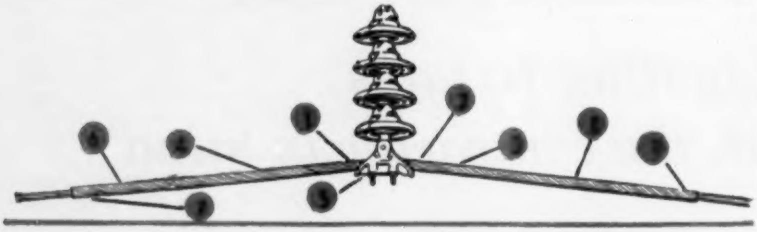
get these
EXTRA FEATURES

in fine FANNER

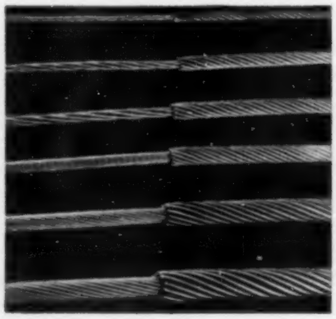
Superformed ARMOR RODS

Their *VERSATILITY* means ECONOMY plus these *ADVANTAGES* (and more):

1. Conductor protection against harmful effects of vibration.
2. Ends chafing and pitting of conductor by loose line components.
3. Elimination of damage to conductor in case of power arcs.
4. Conductor strength and conductance restored where damaged.
5. Benefits from smaller and closer fitting clamps.
6. Complete reusability — time after time.
7. Permanent "self-clamping" action for life of the application.
8. Facilitated hot-stick application when necessary.
9. Conductance of armor comparable to that of conductor.



• High standards in design and production of FANNER SUPERFORMED ARMOR RODS based on over 50 years of manufacturing provide unvarying uniformity of application and service. Consult our agents or write direct for additional information on Superformed Armor Rods, Line Guards, Tap Armor and Patch Rods.



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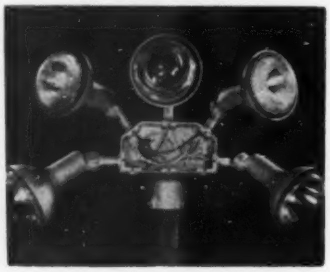
THE FANNER MANUFACTURING CO.
Brookside Park • Established 1894 • Cleveland 9, Ohio
AGENTS IN PRINCIPAL CITIES

For additional information, request Technical Bulletin 386-F, which describes the MDB-10 floodlight's construction, and illumination characteristics. Write Crouse-Hinds Co., Wolf and 7th North Sts., Syracuse, N. Y.

For additional data, ask for item 5126, using the card on page 33.

Wiring trough serves up to eight light holders

FIVE HR HOLDERS for 150 W-Par 38 or R40 reflector lamps are shown mounted on a WTA wiring trough with allen head focus locking screws. The wiring trough is a product of the Teal Corp., 14 Cordier St., Irvington, N. J. The front cover and weatherproofing gasket which seat against a recessed shoulder have been removed to show the extra large splicing area which gives ease of installation and wiring.



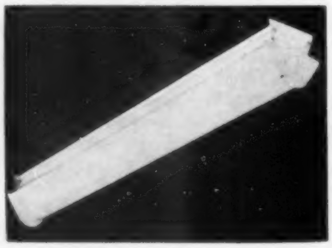
The Teal design eliminates the nipples and couplings normally required. The WT wiring trough will accommodate up to eight holders without interfering with one another. There are seven styles of holders available to accommodate the various reflector and projector lamps.

For additional data, ask for item 5127, using the card on page 33.

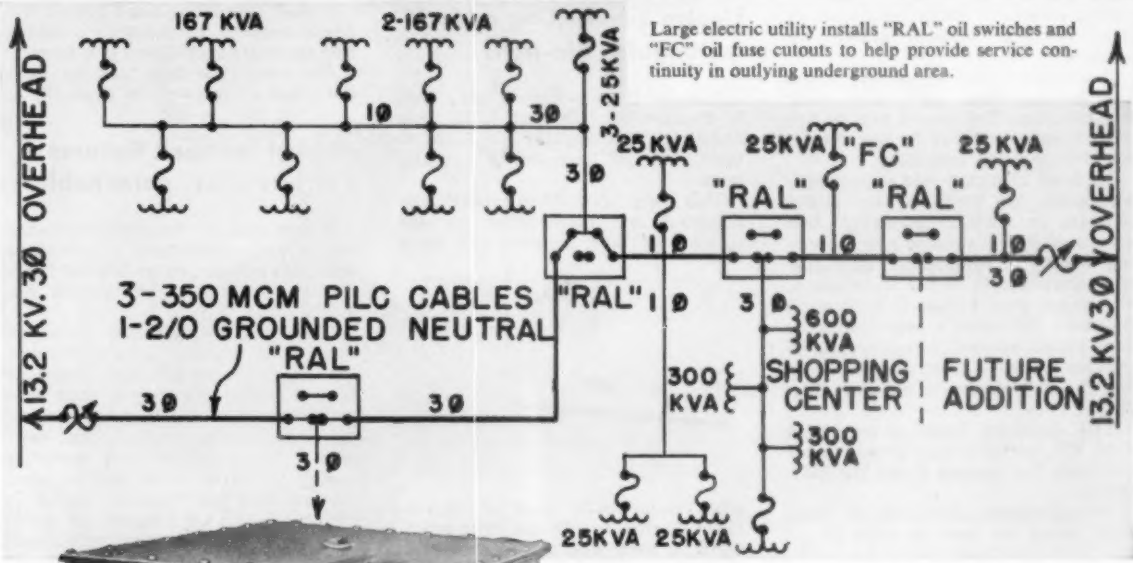
Sylvania adds fluorescent corridor light fixture

A NEW FLUORESCENT fixture designed primarily for use in corridors has been announced by Sylvania Electric Products, Inc., Fixture Dept., Salem, Mass.

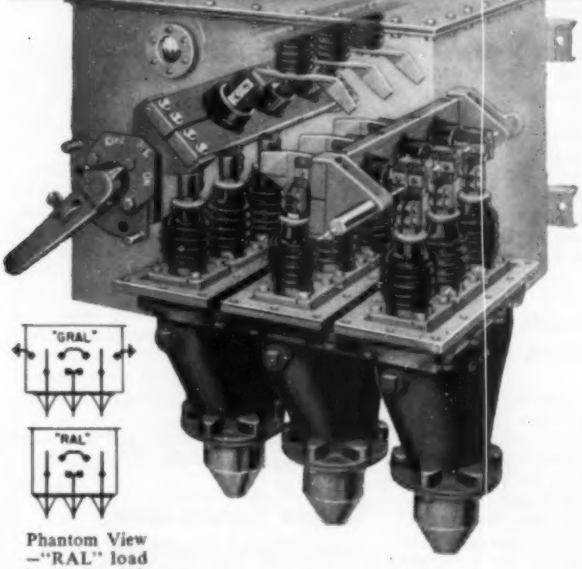
Available in one and two-lamp units, the styling and simplicity of the fixture make it blend in with nearly any architectural environ-



G&W sectionalizing devices promote primary cable system flexibility


167 KVA
2-167 KVA
3-25KVA
1Ø
3Ø
3Ø
13.2 KV. 3Ø OVERHEAD
25 KVA
25KVA
"FC"
25 KVA
"RAL"
"RAL"
"RAL"
1Ø
1Ø
1Ø
3Ø
3Ø
13.2 KV 3Ø OVERHEAD
3-350 MCM PILC CABLES
1-2/0 GROUNDED NEUTRAL
"RAL"
3Ø
3Ø
3Ø
600 KVA
300 KVA
SHOPPING CENTER
FUTURE ADDITION
300 KVA
25KVA
25KVA

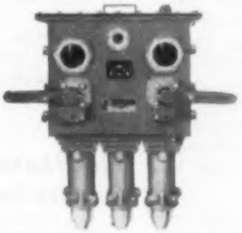
Large electric utility installs "RAL" oil switches and "FC" oil fuse cutouts to help provide service continuity in outlying underground area.



Phantom View —"RAL" load break oil switch 15 Kv.

The "RAL" loop through load break oil switches in the main cable run permit supplying the branch loads from either of the two overhead circuits.

The "FC" oil fuse cutouts serve as fuse-switches for the individual loads (3 phase and single phase).



Viewing windows in oil switch tank permit "seeing" whether the links are in the "ON", "OFF" or "GROUND" position.

"FC62" size oil fuse cutout is applicable to 13.2 Kv. solidly grounded neutral system. ➡

Type "RAL" load break subway oil switches have provided safe and convenient means for sectionalizing cable circuits for over 20 years. They are reasonably priced, too. Why not send for the following bulletins and investigate the application of "RAL" switches and "FC" oil fuse cutouts to your distribution system.

Bulletin H49—Data on primary distribution system flexibility.
Bulletin DB51—Lists various types of "RA" oil switches.
Bulletin CA52—Data and prices on Type "FC" oil fuse cutouts.

G&W ELECTRIC SPECIALTY CO.
7780 Dante Avenue, Chicago 19, Illinois, U.S.A.

Representatives in principal cities of U.S.A.
In Canada—Powerlite Devices, Ltd.,
Toronto, Montreal & Vancouver

CD551

G&W

1905
50th ANNIVERSARY
1955

ment. It is particularly effective when mounted in continuous rows.

The Corridor Light is ideal for schoolroom corridors, stairways, washrooms, between book stacks, hallways, and in storage areas. It is useful wherever continuous lines of light from a compact source are needed.

A one-piece molded plastic shield affords excellent light and color transmission. The shield can be removed easily without the use of tools for cleaning and servicing.

Made of 20-gauge cold rolled steel, knockouts are provided for either pendant or surface mounting. End tear-outs for continuous row mounting create a continuous wire-way the entire length of the installation. The rapid-start fixture is finished in Sylvania Miracoat, a high temperature baked enamel which results in greater paint adhesion and durability. The reflectivity is not less than 86 per cent.

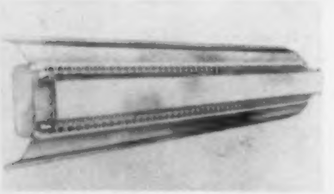
The Corridor Light is equipped with ETL certified high power factor ballasts. The fixture bears the ETL label.

For additional data, ask for item 5128, using the card on page 33.

Smithcraft develops improved Turreter unit

Development of a new and improved Turreter "Series 5" unit to provide approximately 10 per cent uplighting has been announced by Smithcraft Lighting Division, Chelsea 50, Mass. The improvements are the result of scientifically designed apertures in the top of the reflector.

Engineered to provide a minimum of glare caused by contrast between lighted and dark areas in order to achieve uniform and comfortable factory lighting, these rugged lighting units are available in many variations to meet a wide range of industrial lighting requirements.



The units are furnished standard with all white housing. Reflectors, all white inside and out, are available with Supercoat Baked Enamel finish or with Lifetime Porcelain Enamel finish.

The new Turreter "Series 5" is equipped with the Smithcraft Fas-Loc reflector fastener which has been designed for easy and convenient reflector removal.

All Turreter "Series 5" units are also available with solid-top reflectors for 100 per cent downlighting.

For additional data, ask for item 5129, using the card on page 33.

Electro Silv-A-King adds rectangular bin-light

Electro Silv-A-King Corp., 1535 S. Paulina St., Chicago 8, Ill., has added the Rectangular Bin-Light to their line of incandescent equipment.

This unit has been specifically designed and constructed for the lighting of bins, shelves, and stock piles along both sides of narrow aisles. It directs diffused light downward to each side of the aisle, and at angles to illuminate bin interiors from top to bottom tiers. Properly designed reflector components also provide correct shielding in the direct viewing angles along the length of the aisle.

The reflector is Porcelain Enameled steel, white inside and outside. Available for 75-100 watt and 150 watt lamps, with either pendent, feed thru, or outlet box fitting.

For additional data, ask for item 5130, using the card on page 33.

Line Material adds Ovalite luminaires

New Ovalite luminaires with service-safe sockets for application to multiple or series, mercury vapor street lighting circuits are now being manufactured by the Line Material Co., 700 W. Michigan St., Milwaukee 1, Wis. The new luminaires are designed to provide maintenance economies, and to facilitate installation, safe maintenance, and safe relamping. They are available with refractors for Type III or Type IV light distribution.

The lamp and socket of each luminaire are parts of the hinged refractor assembly and are immediately de-energized and isolated from the circuit as the luminaire is opened. Series luminaires incorporate make-before-break contacts that eliminate arcing while maintaining circuit continuity. The same make-before-break action is employed when the luminaire is closed.

Ovalite luminaires for multiple circuits accommodate A-H1, E-H1, or C-H5 mercury vapor lamps, or their color improved versions. Ovalites with the service-safe feature for series circuits accommodate E-H1 and J-H1 lamps. These luminaires are adaptable to horizontal or pendant mounting.

A cast aluminum hood houses the Alzak-treated aluminum reflector and supports the hinged refractor.

For additional data, ask for item 5131, using the card on page 33.

Markel recessed fixtures are screwless, detachable

A new line of recessed fixtures for homes and commercial installations has been announced by Markel Electric Products, Inc., 145 Seneca St., Buffalo 3, N. Y.

These new self-locking, screwless, detachable modern recessed fixtures are ready to install with ordinary house wiring. However, they are available with either pre-wired or unwired recess boxes. The prewired recessed boxes are ready to install to standard 60 degree wire; the unwired are ready to install to 125 degree to 150 degree AF wire. These fixtures are precision engineered and range in size for 60, 100 and 150 watt lamps.

Features include simple, speedy installation, adjustable all-position hangers, smooth flush mounting, no need for special framing, and specially engineered light seal that eliminates light leakage.

The self-locking frames and glassware are individually packed. The standard finishes are polished chromium, high baked white enamel and polished brass. Other finishes are available on special order.

All Markel fixtures have the I.B.E.W., A.F.L. label, are approved by Underwriters Laboratories, Inc., and are unconditionally guaranteed for one year to be free from imperfection in materials and workmanship.

For additional data, ask for item 5132, using the card on page 33.

Gibson fixture meets new school standard

Gibson Manufacturing Co., 1919 Piedmont Circle, Atlanta, Ga., recently announced a new fixture designed especially to meet the new American School Standard. Designated the MP-45, this new unit has 45 degree by 45 degree shielding and is available two lite - 40 watt, two lite - 40 watt tandem and two lite - 75 watt with a choice of all metal or plastic sides panels. With either material it equals or exceeds the new standards.

Due to the special nature of the fixture design, reflector surfaces are kept unusually clean by the convection currents created by the

Just 10 Seconds could have finished this job on time

The job was going smoothly and on time. Then came the taping! The tape ravelled. It wouldn't tear straight and clean. The result was wasted time, wasted motion and wasted tape. **And The Reason** . . . the cotton cloth base of the tape was not of the best grade and was not carefully and accurately cut.

Why run the risk yourself when there is a tape that **always** tears clean and straight, that is made from the finest cotton cloth base and is automatically cut perfectly — roll after roll, day after day, year after year?

Send today for your ACCURATE 10 SECOND TEST KIT . . . no claims, no hearsay . . . the proof is in the product for you to see.

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FRICTION TAPE
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ACCURATE MFG. CO.
50 Hepworth Place, Garfield, New Jersey

Please send me, without obligation, an ACCURATE 10 SECOND TEST KIT.

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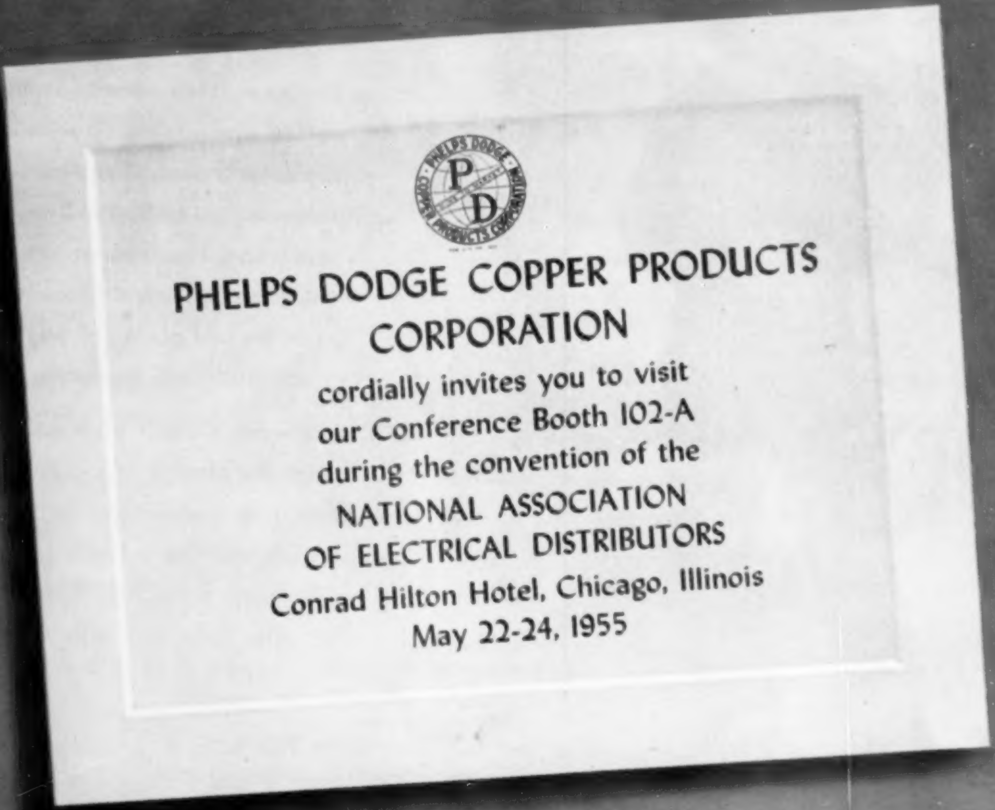

To All Our Distributor Friends...

PHELPS DODGE COPPER PRODUCTS
CORPORATION
cordially invites you to visit
our Conference Booth 102-A
during the convention of the
NATIONAL ASSOCIATION
OF ELECTRICAL DISTRIBUTORS
Conrad Hilton Hotel, Chicago, Illinois
May 22-24, 1955

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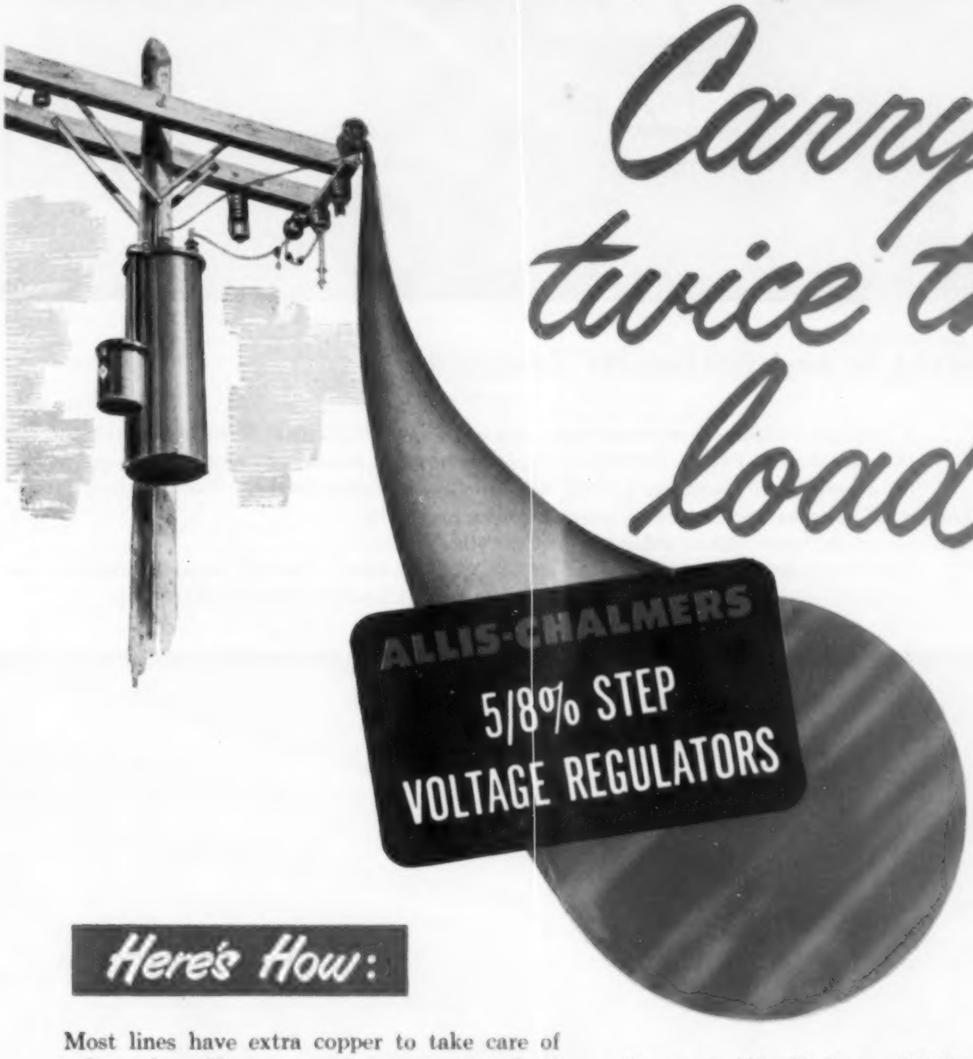
CORPORATION

40 WALL STREET, NEW YORK 5, N. Y.

Make Present Wire

Carry twice the load!



Here's How:

Most lines have extra copper to take care of voltage drop. You can use it to carry more load if you let Allis-Chalmers distribution regulators control voltage automatically.

When load is doubled, voltage drop doubles, too. That's where the ± 10% range of Allis-Chalmers distribution regulators comes in. For example, on a line with 10% voltage drop, doubling the load makes voltage drop 20%. With an A-C voltage regulator you bring the voltage drop back to 10%.

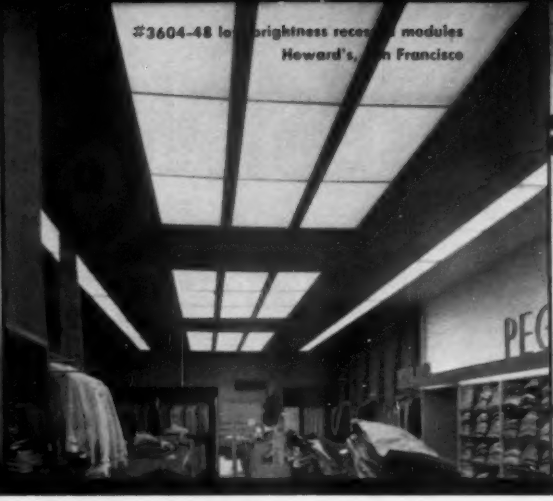
Low-cost Allis-Chalmers distribution regulators mean small capital expenditure. And close voltage control provides higher revenue, few voltage complaints.

A-C distribution regulators are ideal for service like this. They provide quality regulation at low cost . . . are easy to install, simple to operate. Get complete facts from your A-C district office or write Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4631

ALLIS-CHALMERS A-C ALLIS-CHALMERS

#HL5602-96 recessed troffers
Stanolind Research Center, Tulsa



#3604-48 low brightness recessed modules
Howard's, San Francisco

#P2301-72 fully enclosed tunnel units
Baytown-LaPorte tunnel, [illegible]

Sunbeam Lighting is architecturally designed

A Sunbeam Visionaire is no mere fixture. It is an engineered source of illumination which becomes an integral part of the architecture. This is one of many reasons why architects across the country specify Sunbeam lighting in their new or remodeled buildings. From one-lamp "strips" to four-foot square, "large area" luminous cells, Sunbeam Visionaires produce scientific illumination for schools, offices, stores, banks, lobbies, public buildings and other specific commercial and industrial locations. See our partial catalog in "Sweets" or write direct for more complete information. Sunbeam lighting is sold through leading electrical distributors.

#P1294-96 plastic semi-indirect commercials
Calif. State Div. of Architecture, Los Angeles

#L1282-48 shallow [illegible]
Honnold [illegible], Calif.

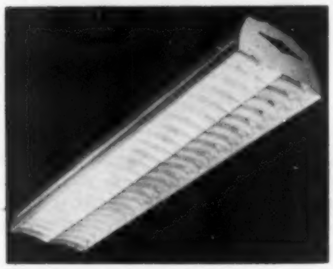
SUNBEAM visionaire SUNBEAM LIGHTING COMPANY

SUNBEAM LIGHTING COMPANY

777 East 14th Pl., Los Angeles 21, Calif.

lamps. According to the manufacturer, only two or three cleanings should be required in the normal life of the fixture.

All louvers are of spring steel thus eliminating the possibility of disfigurement in handling.



Louver assembly may be dropped from either side or either end or removed completely for relamping. A simple snap arrangement releases the louver.

The new MP-45 is adaptable to all types of mounting. Especially interesting is the recently developed "I"-Beam mounting bracket which permits mounting the fixture directly to the overhead I-Beams. Also new is a special duplex side clamp connector said to reduce mounting time in continuous runs by 20 to 30 per cent.

For additional data, ask for item 5133, *using the card on page* 33.

Announce dimmer control for theatrical systems

A NEW MAGNETIC amplifier type dimmer control for theatrical lighting systems has been developed by Vickers Electric Division, Vickers, Inc., 1815 Locust St., St. Louis 3, Mo.

Use of self-saturating magnetic amplifiers in the dimmer eliminates the need for electronic tubes and permits operation on control currents of very small magnitude and at low voltage.

Dimmer response is instantaneous, without warm-up time, and provides smooth transition of light intensity from full brilliance to complete blackout.

The only moving part in the entire dimmer is a miniature pilot potentiometer with which the operator controls dimming. Pilot potentiometers can be located at one or more convenient control stations, remote from the dimmer units, making Vickers dimmers ideal for remote installation when space is at a premium.

Elimination of electronic tubes and their attendant maintenance and service problems, and use of static type components of rugged construction, result in long life and dependable operation of the new dimmer.

The compact dimmer consists of a power reactor assembly, selenium rectifier units, and a self-saturating magnetic amplifier type pre-amplifier with bias circuit elements.

For additional data, ask for item 5134, *using the card on page* 33.

G-E starter designed for longer lamp life

A NEW STARTER designed to give longer average life to regular 40-watt fluorescent lamps has been announced by General Electric's Wiring Device Dept., Providence, R. I.

The new starter contains a glow switch entirely different from previous types. This glow switch, which was developed by G-E's Lamp Development Laboratory at Nela Park, Cleveland, prevents the voltage surges which are sufficient to cause instant starting of lead-circuit lamps thus shortening lamp life.

Most 40-watt lamps are operated from a lead-lag type of two-lamp ballast. For some time it has been known that the life of the "lead-circuit" lamp was considerably less than the "lag-circuit" lamp under average conditions. Investigations showed that this decrease life often resulted from instant starting of the lead-circuit lamp even though the ballast and starter installed in the fixture were designed to provide a pre-heat interval. In effect, the new switch assures proper pre-heating time for lead-circuit lamps and prolongs lamp life.

The new glow switch starter for 40-watt lamps has been designated as the FS-400 Watch Dog starter.

For additional data, ask for item 5135, *using the card on page* 33.

Motors, controls, switches

Allis-Chalmers announces new wound-rotor motor

A NEW RIB-TYPE enclosed, fan-cooled wound-rotor motor, made with slip rings, brushing rigging, rotor and stator inside a single frame enclosure has been announced by Allis-Chalmers Manufacturing Co., 938 S. 70th St., Milwaukee 1, Wis.

The first Allis-Chalmers explosion-proof wound-rotor motor to bear the Underwriters' Laboratories label, the new unit is available at 1800 rpm and slower speeds, in frames 284 to 505, in standard enclosed or explosion-proof construction.

In general, the new motor is applicable where very low starting current, high starting torque, smooth acceleration, jogging or variable adjustable speed dictate the use of a wound-rotor motor and where moist, dirty, corrosive, or hazardous atmospheres require a totally enclosed motor.

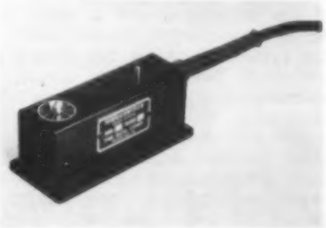
The frame of the motor has an extended front end to include the slip rings, brushes and brush rigging in one enclosure. The elongation provides added surface for heat dispersal. Removal of two large pipe plugs from the upper quadrants of the frame on the slip-ring end provides large openings for maintenance work and adjustment of brushes and brush rigging. Slip-ring leads enter a separate cast-iron conduit box and the lead opening in the frame is sealed.

For additional data, ask for item 5136, *using the card on page* 33.

Vibraswitch serves as protective device

USED FOR VIBRATION measurement or as a protective device permanently installed on any rotating or vibrating machine, the new Model 1 Vibraswitch has been announced by the Beta Corp., P. O. Box 8625, Richmond 26, Va.

This unit serves to prevent costly damage or material wastage from malfunctions causing or resulting from excess vibration. An internal SPDT snap switch may be wired into control circuits carrying up to five amperes to actuate a warning or shut-down the machine the instant that the vibration exceeds normal by a preselected amount.



The device is capable of actuation with vibratory displacement increases of less than 10 microinches at the most sensitive setting. Flat frequency response from 0 to 200 cps., (12,000 rpm), insures reliable results on high speed equipment. The Vibraswitch requires no power source or special auxiliary equipment.

For additional data, ask for item 5137, *using the card on page* 33.

Westinghouse adds NEMA Type 7 breaker enclosure

WESTINGHOUSE ELECTRIC CORP., P. O. Box 2099, Pittsburgh 30, Pa., has introduced new nodular cast iron enclosures for AB-1 circuit breakers in hazardous locations. The new material permits stronger construction while achieving a weight reduction of 45 per cent over conventional cast iron.

Wide machine-ground flanges and close-fitting operating handle mechanisms prevent internal arcs from igniting explosive or combustible atmospheres. The Type 7 enclosure is offered for NEMA Class I, Groups C and D locations where potentially explosive vapors are present.

Covers are secured by high tensile strength steel bolts with suitable plating to make them corrosion resistant.

Presently available in standard ratings between 15 and 100 amperes, AB-I breakers in the new enclosures can be equipped with all conventional accessories.

For additional data, ask for item 5138, *using the card on page* 33.

Peak-Trol is automatic off-peak load control

DESIGNED FOR AUTOMATIC off-peak load control, Peak-Trol has been announced by Control Corp., 718 Central Ave., Minneapolis, Minn. The Peak-Trol system being automatic, eliminates the use of old fashioned time-clocks, helps the power company to cut peak loads, and fill in the valleys which in turn improves the load factor and brings about large savings.

By employing a signal transmitter at the substation and a small receiver at the water heater location, the system is ready for automatic operation. Normally, no signal is transmitted on the power line. All equipment at rest except the watt meter load detector. This load detector has two adjustable limit settings. When the load goes above the upper setting, the transmitter is turned on and sends out a signal over the power line which automatically turns off all water heaters. When the load goes below the lower setting, the transmitter sends out another signal and the water heaters are automatically turned on again.

The Peak-Trol signal is formed by a 360 cycle sine wave which is fed into the power system. For "off" operation, this signal is fed at such a phase angle with respect to the power voltage wave, that it will add slightly to one-half of the power voltage wave (for example, the positive half) and subtract slightly from the other half of the power voltage wave (the negative half). This creates a slight difference between the two halves of the voltage wave which is detected by the receiver at the water heater, and current is turned "off."

For "on" operation, another signal is sent out and the receiver at the water heater automatically turns the current on.

The transmitter located at each substation is a simple motor generator. The low power Peak-Trol signal has such a slight effect upon the system voltage, it ordinarily can be detected only by the receiver at the water heater location. The receiver unit is a simple vacuum tube amplifier. There are no sensitive relays used. The only moving part is a heavy-duty load relay which shuts off or turns on the current.

Primarily designed for automatic control of water heaters, the system is ideal for any off-peak load control. The manufacturer claims that Peak-Trol can operate over practically any distance and will control practically an unlimited number of water heaters.

The transmitter is equipped for manual operation in the event of an emergency. The transmitter is also designed so water heaters may be picked up in small groups if desired.

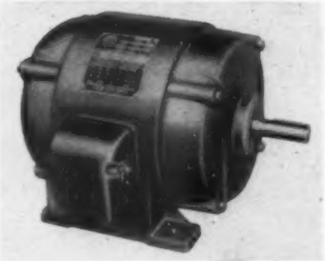
For additional data, ask for item 5139, *using the card on page* 33.

Lima announces new industrial motor line

LIMA ELECTRIC Motor Co., 36 Findlay Rd., Lima, Ohio, is now manufacturing a completely new line of industrial electric motors. These motors are built to the new NEMA standards and incorporate the many most desirable features.

Some of the important advanced features of these a-c motors include better protection—a lower air opening in the end-bell combined with a steel baffle plate gives maximum protection to the winding from moisture and abrasive dusts in the drip-proof design. Double-end ventilation is provided by dual cast aluminum fans. These new smaller frame motors provide greater horsepower in a smaller package—efficiency is greatly increased with a reduction in unit weight. Through newly developed insulating materials, improved electrical designs, increased cooling capacity and the use of double-width prelubricated sealed ball bearings, a definite contribution is made to increased service-free life.

Currently, all standard ratings are available in frame sizes 182, 184, 213 and 215. The balance of the line, up to and including 30 hp is being processed on an accelerated schedule.



For additional data, ask for item 5140, *using the card on page* 33.

C-D motor capacitors feature booted terminal

ANNOUNCEMENT of a new series of AC oval case, paper-oil motor capacitors especially suitable for applications in air conditioning and allied fields has been made by the Cornell-Dubilier Electric Corp., South Plainfield, N. J.

Called the "Style MKV" series, these capacitors are cased in drawn oval terneplate containers which are hermetically sealed to fully protect them from moisture and to prevent impregnant leakage.

The terminals are mounted on the covers and protected by synthetic rubber boots through which flexible insulated leads are brought out. The standard "MKV" unit is provided with parallel wire leads which are 12 inches long and terminate with connecting lugs. A choice of two boot sizes and five bracket styles are available.

The units are impregnated with "Dykanol A" for general applications, or "Dykanol J" for critical low temperature applications.

For additional data, ask for item 5141, *using the card on page* 33.

Frank Adam switch has combined features

A SWITCH that combines both interlocking and non-interlocking switch features in one unit, has been developed by the Frank Adam Electric Co., P. O. Box 357, Main Post Office, St. Louis 3, Mo. The new switch is known as Frank Adam type SCSD Standard Duty Closed SHUTLBRAK Switch.

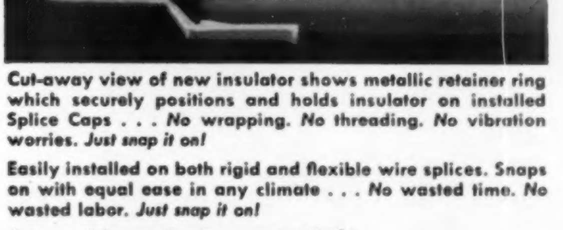
Approved by the Underwriters' Laboratories, Inc., for label service, the new switch, according to company officials, is ideal for motor control, service entrance or any job requiring a standard duty operating switch.

Features of the new switch in-

IT'S A SNAP . . .

to make PERFECT insulated splices with the

NEW BUCHANAN Snap-On Insulators



Cut-away view of new insulator shows metallic retainer ring which securely positions and holds insulator on installed Splice Caps . . . *No* wrapping. *No* threading. *No* vibration worries. *Just snap it on!*

Easily installed on both rigid and flexible wire splices. Snaps on with equal ease in any climate . . . *No* wasted time. *No* wasted labor. *Just snap it on!*

Approved for applications up to 105°C.

Now . . . your choice of splice insulators—familiar Vinyl Insulator with turn-up security ring or new snap-on Nylon Insulator—*both* available from Buchanan . . . *both* UL and CSA approved for use on Buchanan Splice Caps up to 600 volts on building wire and 1000 volts in fixtures.

Use new Nylon Insulator #2007 on Splice Caps #'s 2004, 2004S, 2006, 2006S; #2014 on #'s 2011, 2011S. New Splice Caps #'s 2006 and 2006S take from 2 #18's thru 4 #12's.

Now you can perfectly insulate a splice with greater ease, speed, and simplicity thanks to the brand new companion to the familiar Buchanan Vinyl Insulator . . . New one-piece snap-on-and-lock Nylon Insulator with internal metallic retainer ring assures fast factory-perfect splice insulation . . . even in extremely cold weather . . . even on flexible wire.

With Buchanan's C-24 pres-SURE-tool with exclusive 4-way crimp, you can splice from 2 #18's thru 2 #6's with only 2 sizes of Splice Caps . . . now with a choice of insulators.

Get the facts now—
Write today for new Bulletin Z5

BUCHANAN
ELECTRICAL PRODUCTS CORPORATION
HILLSIDE, NEW JERSEY

clude quick-make and quick-break operation with interlock on full opening, hinged cover, (special release is provided for access in "on" position by authorized person), quick conversion to non-interlocking operation by manually shifting a simple mechanism inside the door, kamplamp pressure type fuse holders with solderless pressure connection, rotary operating handle, suitable for padlocking, and positive "on" and "off" indication in cover.

The new units are available in the following capacities: 30 to 200 amps., 250 and 600 volts AC or DC, 2, 3 and 4 poles single throw.

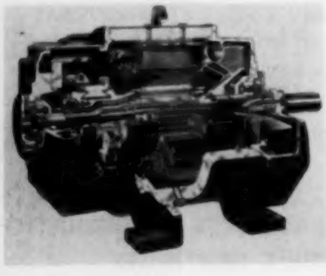
For additional data, ask for item 5142, *using the card on page* 33.

Reliance introduces direct-current motors

A COMPLETE NEW LINE of industrial direct-current motors has been introduced to industry—the new Super 'T' Line Motors developed by the Reliance Electric and Engineering Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio.

The controlled reaction of motors to the demand for a change with a "Dynamic Response" formerly found only in specially designed machines is the everyday standard of performance of the new Reliance Super 'T' Motors. These new motors are described as producing fast and accurate response.

Super 'T' Line Motors are being produced in the sizes from 20 to 100 horsepower, and the range will be extended both upward and downward to higher and lower horsepowers. A complete range of mechanical enclosures has been developed to assure complete protection under every known operating condition.



For additional data, ask for item 5143, *using the card on page* 33.

Ohio Carbon kit contains 60 brushes

THE OHIO CARBON CO., 12508 Berea Rd., Cleveland 11, Ohio, announces the availability of carbon kit number 7-A which contains 20 types and sizes of brushes. The 20 types and sizes make a total of 60 brushes.

KIT No. 7-A
THE OHIO CARBON CO.

An unusual feature of this kit is that the 60 brushes can be applied to 848 models of motor driven tools covering 17 popular makes.

All brushes are listed in alphabetical order showing types and models of electrical tools to which they can be applied. Other useful data is also furnished including identification of each brush to its application by code number.

For additional data, ask for item 5144, *using the card on page* 33.

Square D announces new distribution panelboards

THE SQUARE D CO., 6060 Rivard St., Detroit 11, Mich., has announced a new line of quick-make and quick-break plug-in fusible distribution panelboards. The line is being marketed as the QMB Saflex because of its quick-make, quick-break characteristics.

An outstanding advantage of this new line is its availability. Standardized plug-in components can be stocked by local distributors for immediate delivery on any job requirement. Plug-in components include both main and branch circuits as large as 200 ampere, either 250 or 600 volts. Interiors, fronts, and three box sizes are equally simple to stock. Studies indicate that more than three-quarters of the local distribution panelboard business can be handled from distributor stock with this new device.

Quality features also play a big part in this new QMB Saflex panelboard. The 30, 60, 100, and 200 ampere units, two and three pole, 250 or 600 volts are equipped with rugged plug-in stabs and are easily plugged onto round bus bars. The larger 400 and 600 ampere units are bolted to flat bus bars and are available in factory assembled panels.

For additional data, ask for item 5145, *using the card on page* 33.

I-T-E enclosure designed for dust-laden atmospheres

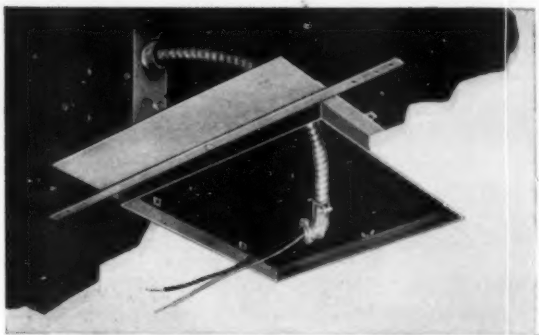
A NEW ENCLOSURE, patterned after Joint Industrial Conference requirements by I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Pa., assures dependable circuit breaker operation in atmospheres containing excessive particles of lint, dirt, sawdust and other foreign matter.

Mounting holes and knockouts are omitted to prevent foreign matter as well as oil or coolant from entering the enclosure. External mounting feet simplify the mounting installation. Solid sheet-steel sides and back have closed welded seams. The enclosure is finished in attractive bonderized enamel.

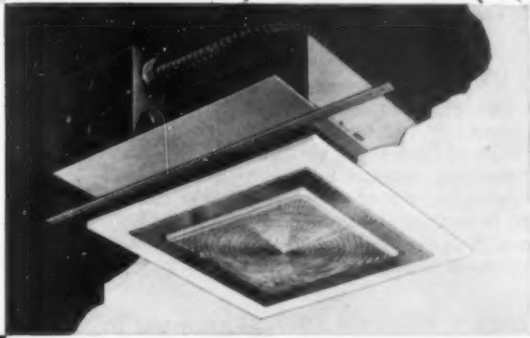
Newly designed operating mechanism operates breaker from outside the enclosure. Visual name plate indicates position of breaker handle at

ART METAL

makes your wiring EASIER *and* FASTER



The Binary Plaster Frame of Art Metal units has complete installation equipment including attached junction box, wire, Greenfield and two mounting rails.



Complete specifications on Art Metal pre-wired plaster frame and lens boxes are found in Bulletin 254. We suggest you write for this bulletin . . . it'll show you how to save installation time and money on your next job!

Art Metal recessed lens box housings are easily installed as the job nears completion. Vertical slotted mounting holes provide adjustment for ceiling thickness from ½" to 2".

THE ART METAL COMPANY

CLEVELAND 3, OHIO

Every 500A fully
TESTED
at the factory

Why this new RIDGID 500A Pipe and Bolt Threading Machine

is making sales records for fast turnover and profit

Works like a Charm—new type Speed Chuck means fast chucking—guaranteed to hold any pipe, conduit or rod tight, forward and reverse! Jaws close and open easily by hand wheel . . . Cutting, threading, reaming tools operate independently, swing up out of way—short pipe can be chucked from front. Quick-opening Quadri, Dual, Mono and Bolt die heads quickly in and out, adjust to size right in machine.

Built like a Machine Tool—Last word in efficient design, easy operation, long service. Plenty of power. Capacity ⅛" to 2" pipe and conduit; ¼" to 2" bolts—to 12" pipe with geared tools.

500A is pre-sold by national advertising to your customers. Write for the facts today!

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Work-Saver Pipe Tools

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how to get HIGH LIGHTING EFFICIENCY at LOW cost

specify *Ainsworth* Budgetlite

Here's highly efficient lighting from streamlined fluorescent fixtures that require hangers only at 5-foot intervals . . . runs up to 60 feet . . . may be fed from a single outlet. Gives comfortable general diffuse light that provides pleasant working conditions. Easy to clean, long-life lamps seldom need replacing. Your clients will appreciate BUDGETLITE's economy as well as its beauty!

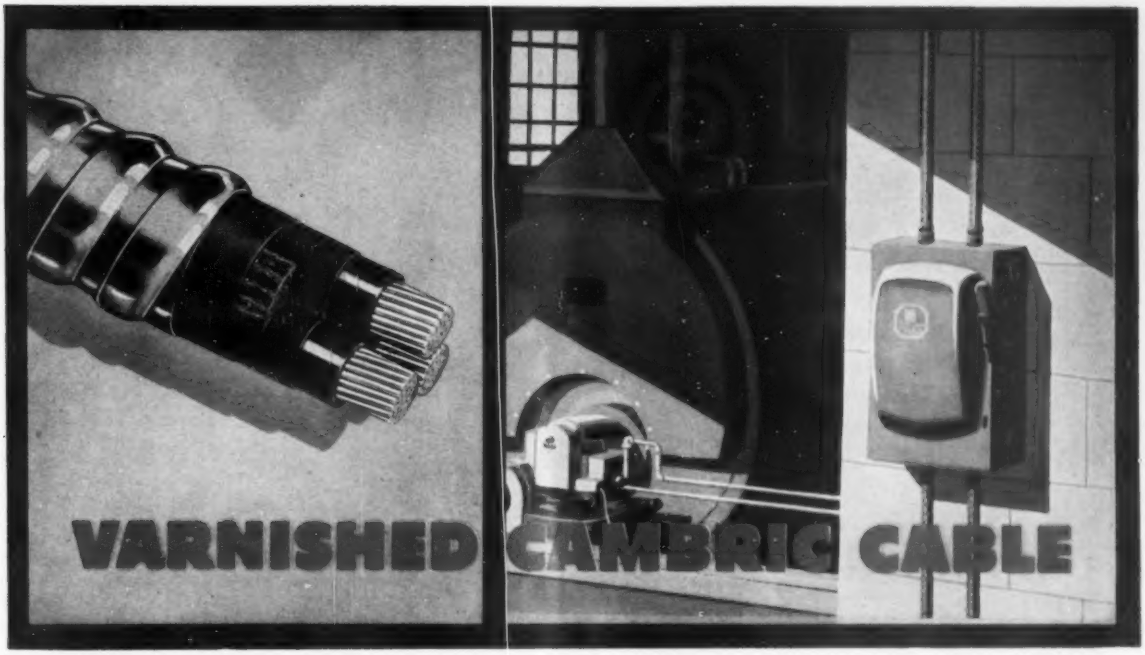
Write today for factual BUDGETLITE *Bulletin!*

REPRESENTATIVES: Some territories open, Inquiries Invited

- **economical to install**
- **completely functional design**
- **better light with less maintenance**

Ainsworth Lighting, Inc.
38-10 29th Street
Long Island City 1, N. Y.

THE GREATEST NAME IN ELECTRICAL WIRE AND CABLE



Extraordinary in its ruggedness, General Cable's Varnished Cambric Cable is designed for both low and high voltage requirements.

Some outstanding features of General Cable's Varnished Cambric Cable are: resistance to oils, greases, the effects of corona discharge; high dielectric strength, long cable life, and high safe operating temperatures which permit larger current carrying capacities. General Cable's Varnished Cambric is available in single or multi-conductor types with outer coverings of braid, tape and braid, lead, neoprene or a variety of armors, including steel, bronze or aluminum. Interlocked Varnished Cambric Cable is ideal for wiring in close areas and under, down and around beams and pillars . . . where power needs vary . . . where plant layout presents space difficulties.

In fact, there is a General Cable Varnished Cambric Cable that is *exactly* right for your particular installation. Ask your friendly General Cable representative or distributor for complete information.

And don't forget . . . General Cable is the only manufacturer who can supply *all* your electrical wire and cable needs!

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CORPORATION

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THE GREATEST NAME IN ELECTRICAL WIRE AND CABLE

BARE, WEATHERPROOF, INSULATED WIRES and CABLES FOR EVERY ELECTRICAL PURPOSE

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Executive Offices: 420 Lexington Ave., New York 17, N. Y.

SALES OFFICES: Atlanta • Baltimore • Boston • Buffalo Chicago • Cincinnati • Cleveland • Dallas • Denver • Detroit Erie (Pa.) • Greensboro (N. C.) • Houston • Indianapolis Kansas City • Lincoln (Neb.) • Los Angeles • Memphis Milwaukee • Minneapolis • New Haven • Newark (N. J.) New York • Philadelphia • Pittsburgh • Portland (Ore.) Richmond (Va.) • Rochester (N. Y.) • Rome (N. Y.) St. Louis • San Francisco • Seattle • Springfield (Ill.) Syracuse • Tampa • Tulsa • Washington, D. C.

Visit us at Booth 60A at the N. A. E. D. Convention, Chicago, Ill., May 22 to May 25.

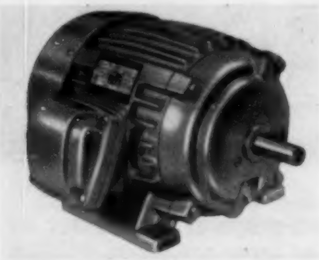
all times. The handle may be padlocked in either "on" or "off" position. Defeater arrangement allows authorized personnel to open enclosure cover with breaker in "on" position. Design includes double-locking provisions—of handle operating mechanism and enclosure cover. AnKoprene gasket assures tight seal when cover is shut.

Enclosures are available with I-T-E "E," "F," "J," and "L" frame circuit breakers in ratings from 15 - 600 amps.; 125 - 600 v. a-c; 125 - 250 v. d-c.

For additional data, ask for item 5146, *using the card on page* 33.

U. S. Electrical adds explosion-proof motor

A COMPLETELY NEW NEMA-specification motor, embodying every requirement to meet the strict specifications of the National Board of Fire Underwriters and carrying the official Underwriters' seal, is being produced by U. S. Electrical Motors, Inc., Box 2058, Los Angeles 54, Calif.



It is designated as Type E and is presently made in ratings from one to five horsepower. This motor is designed to operate in extremely dangerous locales and is made for Class I, Group D services for highly inflammable gases and volatile liquids, and Class II, Groups F and G for combustible dusts. It is fully enclosed, with special provision to guard against fire, dust and moisture. Type E is equipped with a spark-proof aluminum fan and Type EN is without fan.

For additional data, ask for item 5147, *using the card on page* 33.

Rain-tight control panel offered by Westinghouse

A NEW RAIN-TIGHT control panel introduced by Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa., for outdoor service is designed for efficient, reliable motor control under a wide variety of climatic conditions. Combining a Life-Linestarter® with either an AB circuit breaker or a fused De-ion® visible-blade switch within a rain-tight cabinet, the panel is capable of accurate overload and short circuit protection.

The rain-tight cabinet is made of Bonderized sheet steel for protection against rust or corrosion. A continuous neoprene sponge gasket insures a rain-tight seal when the cover is closed and its luggage type latches are fastened. Mounting brackets at top and bottom are suitable for pole or wall mounting. Ample space is provided within the enclosure for mounting timers, relays, and other auxiliaries. Built-in oil-tight push-button assemblies are proof against rain damage, and when equipped with rubber caps, are wholly unaffected by accumulations of ice.

The control panel is available for 220 or 440-volt application, in NEMA sizes 1 through 4, and in ratings up to 100 horsepower. Low voltage protection is standard with the Life-Linestarter®, and two overload relays are installed as standard equipment. Three overload relays can be provided when desired.

For additional data, ask for item 5148, *using the card on page* 33.

Square D announces new reversing drum switch

A NEW SIZE 1 reversing drum switch is now in production by the Square D Co., 4041 N. Richards St., Milwaukee 12, Wis. This new device is used for across-the-line starting and reversing of a-c polyphase or single phase motors, or d-c motors. Compact and inexpensive construction makes it ideal for use on small tools. Advanced design and modern styling enhance the appearance of any product on which it is used. A large legible nameplate readily indicates the handle position. The user has a choice of either "maintained contact" or "spring return to off" in the same switch. No tools are required for the simple conversion.

REV
OFF
SQUARE D COMPANY

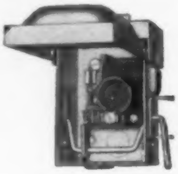
Long wearing nylon shaft bushings and sturdy construction assures a long trouble-free mechanical life. Current carrying parts are heavy copper to assure adequate capacity for the most severe applications. The contacts are plated for maximum life.

Installation is simplified by a quickly removable slip-on type cover, held in place by a single captive screw; approved pressure wire connectors which eliminate lugs or looped wire ends; generous easy-to-get-at wiring space; and easily accessible mounting holes.

For additional data, ask for item 5149, *using the card on page* 33.

Wadsworth introduces miniature switches

NEW MINIATURE Type D, 30 ampere general duty switches have been introduced by the Wadsworth Electric Manufacturing Co., Covington, Ky. These no-fused outdoor sign switches are designed for electric sign disconnect.



The new switches are available with or without hubs, also a fusible indoor switch. Both are side operated, knife blade and single throw.

Size D 2 ¾-inches, W-3 ½-inch, and L 5 ½-inch, are designed for commercial, industrial, home and farm use. They can be used with any of the following: signs, air conditioners, oil and gas furnaces, stokers, motors of all kinds, conveyors, incubators, flood lights, irrigation pumps, lathes, milk houses, etc.

For additional data, ask for item 5150, *using the card on age* 33.

Wagner Electric redesigns fractional hp motor line

A COMPLETELY redesigned line of small fractional horsepower single-phase motors, ¼ horsepower and smaller, is announced by Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.

These new capacitor-start and split-phase motors have shallower endplates to materially reduce their length, with ample ventilating openings located below centerline for effective dripproof construction. They have no ventilating openings in the frame, which is of heavy rolled steel.

Sleeve bearing motors in the new design are lubricated by means of felt packing, cut to specified shapes and inserted in specially designed bearing housings with inner and outer seals. This type of construction effectively prevents oil leakage and assures a constant supply of oil

NEW PRODUCTS

New Power Outlets, Cords Announced by LEVITON

In time for the air conditioning season are new Leviton power outlets with "L" shaped slot rated 30 Amps. Available in either flush-mounted type, or surface-mounted type. Power cords also rated 30 Amp. with "L" shaped blade are available with either rubber or bakelite caps.

Also new is a 50 Amp. flush type range receptacle. These units are in addition to this line of devices already listed in the Leviton catalog.

5050 Range Receptacle for surface type mounting—rated 50 Amp., 250 volts.

5051 Flush Mounting Power Outlet rated 50 Amp., 250 volts. Furnished with extra large terminal screws for easier wiring.

5054 Surface Mounting Outlet with "L" slot rated 30 Amp., 250 volts. Ideal for air conditioners, dryers, etc.

5055 Flush Mounting Power Outlet rated 30 Amp., 250 volt with "L" ground slot.

21950 Wall Plate specially designed for use with flush mounting outlets, available in brush brass finish. Furnished with four mounting screws.

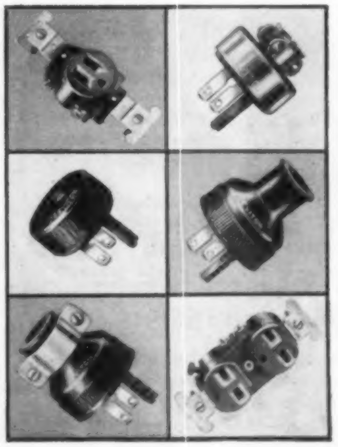
Leviton also has available a complete line of power cord sets for use with these receptacles. Heavy duty rubber cable with 3 conductors is soldered to blades of plug cap with copper lugs at free end with copper clamp. Furnished with either rubber or bakelite heads.

All are listed by Underwriters' Laboratories, Inc. For complete information write Leviton Manufacturing Co., Brooklyn 22, N. Y.

NATIONAL ELECTRICAL CODE NOW REQUIRES 3-WIRE DEVICES FOR ADDED SAFETY!

NEC Specifies Installation Conditions For Grounding Portable Electrical Equipment

New requirements of the National Electrical Code make it mandatory to ground portable electrical equipment under certain operating conditions. Specifically, the NEC lists: hazardous locations, where equipment is operated at more than 150 volts to ground, and in industrial and commercial installations where equipment is operated by persons standing on metal floors or wet places. The many applications will be found in plants and factories, institutions, public buildings, on construc-
on work and on farms. Also adopted by
nderwriters' Laboratories, Inc., the ruling
sures greater safety in the



HERE'S HOW LEVITON HELPS YOU MEET NEC REQUIREMENTS . . .

Leviton now offers a complete line of 3-wire U grounding-type devices for use in accordance with new rulings by National Electrical Code and Underwriters' Laboratories, Inc.

FOR THE MANUFACTURER:

Here are 3-wire grounding caps to meet every requirement. Available in rubber (with or without cord grip) with U grounding prong and parallel blades (rated 125V), or with tandem blades (rated 250V). Also phenolic caps and armored caps with cord grip in both parallel and tandem types.

FOR CONTRACTORS AND ELECTRICIANS:

To accommodate electrical equipment furnished with 3-wire U grounding caps, you'll have to install the proper receptacle. Look to Leviton for a complete line of receptacles — single outlets, duplex receptacles, receptacles on covers. All available with either tandem slots or parallel slots designed to take 3-wire caps or even regular 2-prong or polarized caps. And, of course, all can be used with either metallic or non-metallic wiring systems.

FOR THE ELECTRICAL DISTRIBUTOR:

Stock and supply these 3-wire grounding devices. They'll be much in demand. And no wonder — Leviton guarantees superior **quality** and top-notch **performance** at sensible **prices**. Remember Leviton is the profit line of wiring devices because it is **the** complete line.

Rated 15 Amp. and listed by Underwriters' Laboratories, Inc.

Your best jobs are done with ... LEVITON

For full information write:
LEVITON MANUFACTURING COMPANY • BROOKLYN 22, N. Y.
Chicago • Los Angeles • Leviton (Canada) Limited, Montreal

For your wire needs, contact our subsidiary — AMERICAN INSULATED WIRE CORPORATION

to the bearings at all times.

Quick-break switch and thermal overload protector are securely attached to the terminal board which is mounted inside the stator frame, thus eliminating all internal connections to the endplates. The terminal board cover can be removed by merely loosening two screws, for ease in connecting the motor to the line.

These compact motors are available with either sleeve or ball bearings and rigid or resilient bases. Rigid base motors have the base welded directly to the frame for maximum strength.

For additional data, ask for item 5151, *using the card on page* 33.

Improved relay replaces centrifugal switches

An improved relay, which replaces centrifugal switches on single phase capacitor-start and split-phase motors, and now features a new variable magnetic phase shift within the relay coil, has been announced by Lewus Electric Co., 1254 W. Harrison St., Chicago 7, Ill.

The relay is constructed of magnetic steel tubing. The magnetic core set screw now carries an adjustable copper shading coil for providing a variable magnetic phase shift in the relay coil. This permits adjustment of the difference in time lag between the two magnetic fluxes of the steel tubing and the core set screw within the coil.

The new design permits very sensitive adjustment of the relay spring tension and silent, snap-action operation of relay contacts. Operation is constant over a wide range of temperature variation.

The Lewus relays are available in six coil sizes for motors from ⅙ to 5 hp.

For additional data, ask for item 5152, *using the card on page* 33.

Tools and testing equipment

Weston offers miniature a-c clamp volt ammeter

A light-weight, pocket-size Clamp Volt-Ammeter, with a single, easily read scale for all ranges and functions, and employing a special shock-mounted instrument movement, has been introduced by the Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark 5, N. J.

Known as the Model 749, this new instrument incorporates the Weston CORMAGR self-shielded mechanism with spring-backed jewels, which is effectively shock-mounted within the Bakelite case. This design safeguards instrument accuracy and enables the instrument to withstand day-in, day-out service over far longer periods. The scale window, too, is of shatter-proof Plexiglass, in modern wrap-around design.

To simplify reading, only a single scale is employed for all ranges and functions which are selected through a convenient, positive action thumb selector switch.

For additional data, ask for item 5153, *using the card on page* 33.

Buck Nycapper features increased versatility

A recent design change to the already versatile 8-1 Buck Nycapper is announced by the Buck Manufacturing Co., P. O. Box 147-249, Roselle, N. J. Originally introduced as an all purpose electrician's hand tool for the cutting, stripping and twisting of solid or stranded wire and the installing of the Nylon insulated Buck Nycaps on pigtail splices, the utility of this already efficient tool is now further increased by its ability to install solderless terminals.

The Nycapper's Tri-Dent crimping action can now be used on wire terminations. This action makes easy, positive terminal installations of exceptionally high mechanical and electrical strength. Definite advantages over existing crimping methods, particularly where terminating solid wire, are gained from this new three-way crimp. Positive, controlled deformation of the wire, without reduction of the cross sectional area which was heretofore difficult to accomplish, is uniformly achieved by the Buck Nycapper.

In addition to the above improvements, Buck has announced that it will soon make available a new line of low cost Bucklugs which have been designed to gain the maximum advantages of the new Tri-Dent crimping action.

For additional data, ask for item 5154, *using the card on page* 33.

Crown wire stripper has lock-open feature

An improved hand wire stripper for general work and production jobs is announced by Crown Industrial Products Co., 1049 Amsterdam St., Woodstock, Ill.

Fabricated of hardened steel construction throughout, the stripper has interchangeable precision-milled cutters, carefully matched in size to cut insulation cleanly without damaging the wire.

A patented lock-open feature holds the jaws open automatically so that the wire can be removed after stripping without crushing. Release of the jaws is accomplished by a single finger-tip touch on the lower handle making it unnecessary to shift the grip on the tool while resetting.

Durable, but light in weight, the stripper is available in three sizes, adaptable to stripping No. 10 through No. 22 wire. Replacement cutter blades are also available in three sizes.

For additional data, ask for item 5155, *using the card on page* 33.

Arro tool designed to expand anchors

Many of the tougher jobs of installing small and medium-size anchors in masonry can be solved by the "Arro" Expander Hammer-

. . . another advance in mercury lighting from G. E.

Now 54% more light from G-E 400-watt mercury lamp

New General Electric H400-RC1 gives top color balance, too

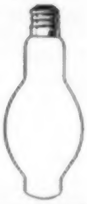
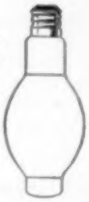
In another mercury lighting first, General Electric has raised the light output of the H400-RC1 mercury lamp from 12,300 to 19,000 lumens! This 54% increase in efficiency results from using a special fluorescent phosphor as a reflector as well as to improve color balance. Its color characteristics are best of any mercury lamp for general lighting. Color rendition approximates a mixture of ⅓ filament light and ⅔ mercury light.

The new G-E H400-RC1 mercury lamp has a life rating of 6000 hours at 5 or more hours per start. It operates on the same equipment as all other 400-watt mercury lamps and is interchangeable in most reflectors.

With its controlled beam, good color, easy maintenance, and high light output, it is first choice for most mercury lighting applications.

For more information on how this new mercury lamp can fit your operation, call your G-E Lamp supplier, or write General Electric Company, Lamp Division, Dept. 482-ES-5, Nela Park, Cleveland 12, Ohio.

COMPARE NEW G-E RC1 WITH OTHER 400-WATT MERCURY TYPES

NEW RC1 VS H400-E1	NEW RC1 VS H400-J1	NEW RC1 VS H400-A1
• Light on the work equal or greater in most equipment • Adds color balance • Less maintenance 	• Delivers 10-20% more light on the work in most equipment • Has somewhat better color balance • Lower cost of light 	• 35% more light on the work in most equipment • Has good color balance • Lower cost of light

Progress Is Our Most Important Product

GENERAL ELECTRIC

less Setting Tool, recently announced by the Arro Expansion Bolt Co., Marion, Ohio. It was designed to expand anchors in all holes that extend through masonry, or in holes with weak bottoms.

The tool is ideal for making attachments to concrete block, cinder block, tile, or any other type of wall which could not withstand hammer blows on standard setting punches. It is also used extensively for setting any number of anchors at an even depth.

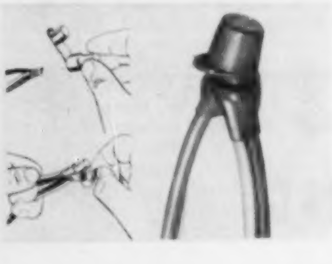
Use of the tool makes installations of anchors fast and easy. The anchor is simply screwed onto the threaded stud, inserted into the hole to the proper depth, and then the T handle is turned until the anchor is fully expanded. The tool comes in four models for installing a wide range of anchors.

For additional data, ask for item 5156, *using the card on page* 33.

Ideal crimp connector has unique insulator

A new type crimp-type wire connector with a unique diaper-wrap insulator has been introduced by Ideal Industries, Inc., Sycamore, Ill. The new connector is said to have extremely high mechanical strength and insulating qualities.

Known as the Ideal Crimp Connector with "Wrap-Cap" insulator, the new connector has only two parts, the sleeve and the patented insulating cap. Both parts are listed by Underwriters' Laboratories, Inc., for general use for branch circuits and fixture wiring.



The insulator is applied by pushing it down over the crimped sleeve and wires and then drawing the tabbed cap and connecting strip through the wires and over the end of the joint in a diaper-wrap. The resulting insulation is said to have higher dielectric strength than the insulation on the wire itself.

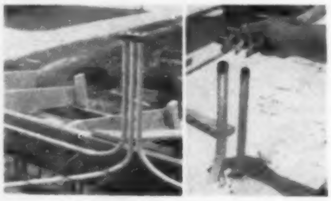
The Ideal crimp sleeve is made of cadmium plated steel to insure greater holding power. It is open at both ends to allow visual observation of the joint.

For additional data, ask for item 5157, *using the card on page* 33.

Pemco tool aids slab raceway installation

RaceKlamp, a new tool designed to improve the efficiency and workmanship of the installation of raceways in a slab, has been introduced by Products Engineering and Manufacturing Corp., P. O. Box 16044, Houston, Texas.

RaceKlamp is now being produced in two sizes—½-inch and ¾-inch. The clamping device of this tool holds the pipes to the same spacing as the knockouts in the outlet box to be used. Rubber adaptor sleeves are furnished with the clamps to give a combination of sizes from ½-inch to one inch.



The RaceKlamp can be installed or removed in 30 seconds. Its internal clamping device will not come loose to foul the raceway. It is equally effective on rigid or steel tube. It can be ganged or racked to hold any number of home runs at the desired height at the panel location.

The RaceKlamp is made of a tough, non-corrosive alloy that will not break under normal use and will last for a great many years.

For additional data, ask for item 5158, *using the card on page* 33.

G-E introduces compact hook-on volt ammeter

A more compact G-E hook-on volt ammeter that is as rugged as its predecessor, yet costs less, has been made possible through application of new molded plastics parts and design ideas.

Produced by General Electric Company's Instrument Department, Taunton, Mass., the new ammeter fits easily into the palm of a man's hand and permits flexibility and ease of operation even in limited space. To bring about these improvements, G-E's Plastics Department engineers specified G-E high-impact rubber phenolic and tough, resilient nylon materials for the ammeter's case.

The meter's hook-on feature permits measurements to be made on both insulated and uninsulated circuits, without entailing interruption of service.

The instrument has a scale and range changing mechanism which provides each of the seven instrument ranges with its own calibrated scale. A simple turn of the selector now brings an entirely new scale into operation, and concurrently makes the required internal circuit changes for the new range.

Designated as types AK-5 and AK-4, the volt ammeter has an accuracy rating of plus or minus three per cent of full scale when used on 60-cycle circuits.

For additional data, ask for item 5159, *using the card on page* 33.

Thomas & Betts tool cuts armored cable

Armored electrical cable as well as copper and aluminum conductor to 4/0 AWG, can be cut quickly and cleanly without a hacksaw by using the new No. 364 cable cutter, recently announced by the Thomas & Betts Co., 72 Butler St., Elizabeth 1, N. J. Designed similarly to the larger No. 365 tool introduced two years ago, the new cutter has specially ground and hardened, blunt cutting edges. Its blades are of forged steel with ⅛-inch overlap, thus allowing repeated sharpening. Together they form a heart-shaped opening (patent applied for), which provides a sliding, slicing action that forces the cable toward the tool's fulcrum. This reduces the required cutting effort and eliminates burring or deforming the cable. After cutting, the cable retains its round shape.

The No. 364 cutter also can cut hard drawn copper and aluminum cable, according to its manufacturer. Other cutting jobs are; non-metallic sheathed cable; service entrance cable; multi-telephone and com-

SAVE

$20.29 TO $101.84 PER 1000 FEET!

with Kaiser Aluminum Weatherproof Conductor

Simply by converting from copper to Kaiser Aluminum weatherproof conductor you save from $20.29 to $101.84 per 1000 feet in *material costs alone!* And there are *other* important potential savings!

Aluminum's light weight permits easier, faster stringing—cuts handling and installation costs. In addition, reduced strains on pole, homes and fittings greatly lower the cost of maintenance and repair.

You can be sure of getting the *maximum* savings possible with aluminum conductor by specifying Kaiser Aluminum. Experienced Kaiser Aluminum field engineers work with your crews right in the field where desired, demonstrate ways to speed installations and cut costs.

ACT NOW—as hundreds of power companies are doing! Convert to Kaiser Aluminum conductor easily, efficiently, economically—and save thousands of dollars a year. Complete field and engineering services at no obligation. Contact the Kaiser Aluminum sales office listed in your telephone directory or one of our many distributors. Kaiser Aluminum & Chemical Sales, Inc. *General Sales Office*, Palmolive Bldg., Chicago 11, Ill.; *Executive Office*, Kaiser Bldg., Oakland 12, California.

Kaiser Aluminum

THE NATION'S LARGEST PRODUCER OF TRIPLEX AND ALUMINUM WEATHERPROOF CONDUCTOR

Estimate your savings with these
Kaiser Aluminum weatherproof conductors:

Per 1000 Ft.	Lbs.	Cost
#6 Solid Copper TBWP*	112	$ 47.19
#4 Solid Alum PE (2/64)	48	26.90
#4 Solid Alum Neo (3/64)	64	26.90
#2 7 Strand Copper TBWP*	270	113.48
#1/0 7 Strand Alum PE (4/64)	141	70.60
#1/0 7 Strand Alum Neo (4/64)	172	70.60
2/0 7 Strand Copper TBWP*	522	208.43
4/0 7 Strand Alum PE (4/64)	261	138.00
4/0 7 Strand Alum Neo (4/64)	306	138.00
4/0 7 Strand Copper TBWP*	800	317.84
336400 CM, 19 Str. Alum PE (4/64)	388	216.00
336400 CM, 19 Str. Alum Neo (5/64)	469	231.00

Jan. 31, 1955 prices based on 30,000#—F.O.B. Destination
*URC Copper Triple Braid Weatherproof

munications cable; super service cords; rope and garden hose; flexible conduit; trench-lay cable, etc., up to a maximum diameter of one inch.

Since the cut is compact and almost perfectly round, no filing, pounding or trimming is necessary. A minimum opening of three inches between the black tubular handles prevents barking of the user's knuckles. The tool is ideal for plant electricians and maintenance men, electrical contractors, utility crews and warehousemen.

For additional data, ask for item 5160, *using the card on page* 33.

Chance making pike poles of laminated Douglas fir

THE PROBLEM caused by the serious shortage of Douglas fir in proper lengths to make one piece pike poles has been solved by the A. B. Chance Co., Centralia, Mo., who are using their hot line tool manufacturing technique for the construction of pike poles from laminated Douglas fir.

The two and 2¼-inch diameter laminated pike poles are made of two or more fir boards bonded together. Three or more fir boards are bonded together to produce poles of 2½ inches in diameter. The new laminated pikes are available in lengths of 10, 12, 14, 16, 18 and 20 feet. A new addition to the line is a 2¼-inch pole available in lengths of 14 through 20 feet.

For additional data, ask for item 5161, *using the card on page* 33.

Ubolet biting edges provide firm pressure

A NEW RIGHT ANGLE Ubolet Type X pipe support, designed for use with standard pipe or rigid steel conduit for mounting on structural flanges up to ⅝ inch thick, has been announced by Spedon Pipe Clamp Co., 33-51 60th Place, Woodside 77, N. Y.

The Ubolet body is made of heavy gauge pressed steel and hardened by the manufacturer's special Ramodized process combining an unusually hard and corrosion resistant surface with flexible inner core. Sharp biting edges at the corners are further apart than the U-bolt legs and provide self-equalizing bite pressure and better stability.

The Spedon Ubolet retains a constantly effective clamping tension in the U-bolt, provided by the saddle spring action. This feature makes this pipe support ideal for heavy-duty industrial applications.

The Ubolet Type X has bodies for pipe sizes ¾ inch and one-inch and have interchangable U-bolts and bodies for sizes 1¼ inch and 1½ inch. Each Ubolet is furnished complete with standard zinc-coated steel U-bolt and nuts assembled ready for use. Available in 3/3 inch to two-inch pipe sizes.

For additional data, ask for item 5162, *using the card on page* 33.

Hykon adds portable extension cord reels

A NEW AND PRACTICAL portable extension cord reel has been added to the line of electrical equipment manufactured by Hykon Manufacturing Co., P. O. Box 923, Alliance, Ohio.

This new cord reel is equipped with lead-in cord and continuous current collector for simple, easy connections. It will hold up to 150 feet of 18-2 cord—other sizes in proportion.

Model 9 weighs but eight pounds, and is built for rugged portable use in commercial, industrial or home workshop applications. Larger reels, special reels for three and four wire cable and non-live extension cord reels are also available.

For additional data, ask for item 5163, *using the card on page* 33.

Burndy line gets universal crimper

DESIGNED TO INSTALL all compression service connectors in the Burndy Crimpit line, the MD3 Hytool, recently developed by Burndy Engineering Co., Inc., Norwalk, Conn., is a lightweight, inexpensive hand-tool with four separate crimping grooves accommodating a wide range of conductor and connector sizes.

Weighing only eight pounds, and measuring 24 inches in length, the MD3 Hytool features a compound cam-and-toggle action that develops a high mechanical advantage and delivers 9,000 pounds of indenting force with a single stroke.

Sturdily constructed of high-strength steel alloys, short-handled, with rubber hand grips, the MD3 is also available with wooden handles.

For additional data, ask for item 5164, *using the card on page* 33.

Wassco pliers tool solders heavy cable

A NEW TOOL for soldering copper tubing is the new No. 10554 plumbers' portable soldering set developed by Wassco Electric Products Corp., Joliet, Ill.

Consisting of an all-electric pliers soldering device (catalog No. 10560) in conjunction with Wassco's No. 105-C2 1000-watt portable power unit, this equipment features safety and ease of use as there is no open flame, burn or fire hazard. It operates from the nearest power outlet, and is fast to rig and start work.

The unit is used primarily for soldering copper tubing "sweat" fittings up to 1¼-inch size. However, it also works with ease and efficiency on heavy electrical wire and cable, such as in heavy motor manufacture, repair and power line work, and on many other heavy soldering jobs.

Its many advantages include easy portability, including a pocket in the case for pliers and leads, convenient push-button heat control in the pliers handle, and ten-foot leads. It will solder ½-inch OD tubing fittings reliably liquid tight in only 20 seconds.

For additional data, ask for item 5165, *using the card on page* 33.

Voltage testing instrument provides variable output

PORTABLE MODEL 421 D. C. Hypot, rated 0-10,000 V.D.C. at 0-500 microamps, is a new addition to Associated Research, Inc., 3758 W. Belmont Ave., Chicago 18, Ill., line of standard D.C. and A.C. Hypots. Applica-

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Eastern ENGINEERED

NOW!

90% EFFICIENCY

with Eastern's NEW "N" SERIES

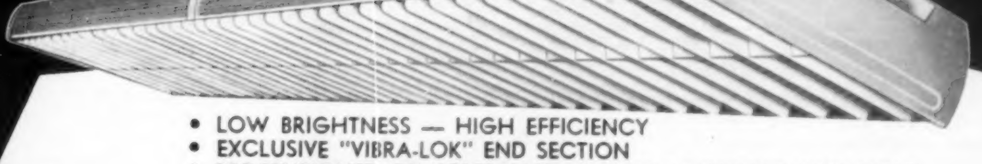
FOR SCHOOLS, OFFICES and PUBLIC BUILDINGS

- 90% EFFICIENCY
- ONE MAN LOUVER INSTALLATION
- EXCLUSIVE "VIBRA-LOK" END SECTION
- SIMPLE LOW COST MAINTENANCE
- AVAILABLE IN 3 CUTOFFS
  35°— 25°, 35°— 45°, 45°— 45°
- FLUORESCENT OR SLIMLINE, 4, 6 & 8 FOOT UNITS

AND

"ZONE OF LIGHT" ILLUMINATION

WITH EASTERN'S NEW "4 Lamp N SERIES"



- LOW BRIGHTNESS — HIGH EFFICIENCY
- EXCLUSIVE "VIBRA-LOK" END SECTION
- PRE-TENSIONED, TEMPERED STEEL SPRING & LOCKING CLIP HOLD PLASTIC OR METAL SIDES IN POSITION
- TWO SECTION LOUVER FOR EASE OF HANDLING & MAINTENANCE — PERMITS RELAMPING OF 2 UNITS FROM ONE LADDER POSITION
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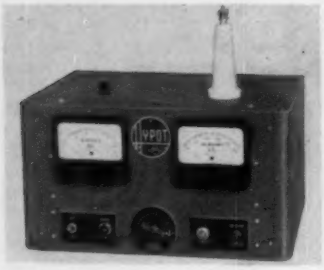
EASTERN FIXTURE COMPANY

170 VERNON STREET, BOSTON 20, MASS.



tions include dielectric strength testing of electrical equipment and components, measurement of insulation resistance up to 1000 megohms, and maintenance testing of heavy equipment regardless of capacitance.

Model 421 provides continuously variable output voltage and current, large 4½ inch kilovoltmeter and microammeter individually mounted, and panel-mounted neon lamp to visually indicate flow of excessive leakage current. Welded steel case with removable cover measures 17 inches x 9 inches x 11 inches. Net weight of instrument is 36 lbs. Input is 115 V.A.C. 50-60 cycle. For complete data on D.C. Hypot testing write for Bulletin 14-1.

For additional data, ask for item 5166, using the card on page 33.

T & B Sta-kon pliers perform many functions

THE NEW STA-KON PLUS pliers (WT-161) performs all the functions of an electrician's pliers and installs a wide range of Sta-kon terminals, splicers and wire joints, according to its manufacturer, the Thomas & Betts Co., 36 Butler St., Elizabeth, N. J. Features of the tool include an electrician's side cutter and a cloverleaf installing nest and indentor.

This unique design allows the tool to install A, B and C series Sta-kon terminals (No. 22 to No. 10 wire) and Sta-kon wire joints (PT60 and PT70) to meet all Underwriters' Laboratories requirements. The double-duty features permit electricians to make staked wire joints without adding another tool to their belts.

Forged from carbon-vanadium steel, the new tool is tempered to four controlled zones of hardness for convenience in easily cutting copper wire. The tool has special, built in surfaces which facilitate insulation crushing. A firm hand hold is assured because of the specially shaped handles covered with plastic cushion grips.

For additional data, ask for item 5167, using the card on page 33.

Pyramid Amprobe Energizer incorporates new features

PYRAMID INSTRUMENT CORP., 630 Merrick Rd., Lynbrook, N. Y., has announced two important new features incorporated in the new Amprobe Energizer Model A-40. This accessory makes possible instant current and voltage readings at the wall outlet, when used in conjunction with a snap-around volt-ammeter.

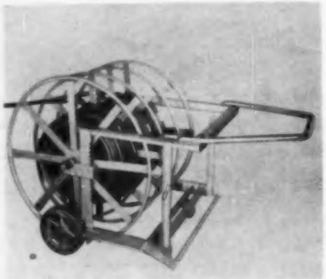
AMPROBE ENERGIZER

One innovation is the providing of receptacles for measuring line voltage at the outlet under actual load conditions while the appliance is connected to the line. Another new feature is the heavy duty construction which increases the capacity to 25 amps for direct current readings, and 10 amps for 10x sensitivity readings.

For additional data, ask for item 5168, using the card on page 33.

Compartmented reels aid in cable handling

THE PRODUCTION of compartmented reels which offer new convenience in handling cable has been announced by the Reel-O-Matic Corp., Division of Columbia Industries, Inc., Columbia, Pa.



Used in conjunction with a Reel-O-Matic unit, cable can be measured, coiled and cut to proper lengths for each compartment of the reel in the warehouse instead of on the job. Complete reel can then be shipped to the job where it is ready for immediate use.

One man alone is then able to pull the cable easily and quickly without assistance in pulling, measuring or cutting. It is not necessary for him to disrupt plant activities or other personnel.

For additional data, ask for item 5169, using the card on page 33.

Armored cable cutter snips with one stroke

A NEW CUTTER for armored cable has been announced by Crown Controls Co., Inc., 40-44 S. Washington St., New Bremen, Ohio.

Called the Crown Armor Cutter, it snips both sides of the metal armor in one stroke, without touching the wire conductors inside. The Telkor Cutter replaces hacksaw cutting, is easy to use in tight locations and adjusts to all common armored cable sizes.

The handles and jaw of the cutter are drop forged and precision machined. The cutting blades are removable for sharpening or replacement. The tool is 10 inches long and weighs 1¼ pounds.

For additional data, ask for item 5170, using the card on page 33.

Pocket-size caliper announced by Burndy

A POCKET-SIZE stainless steel caliper for direct reading of electrical conductor sizes has been developed and marketed by Burndy Engineering Co., Inc., Norwalk, Conn. Called the "Wire-Mike," this new instrument gives direct size readings of Stranded Commercial Cable from No. 18 through 2000 Mcm., Solid Wire (AWG) from No. 20 through 4/0; ACSR from No. 6 through 336.4 Mcm., rigid conduit and copper pipe from ¼ inch through 2½ inch, and thinwall conduit from ⅝ inch through 2 inch.

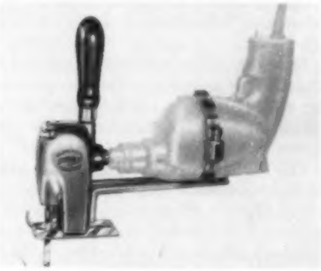
In addition, the Wire-Mike is an inside and outside caliper in 32nds inches and a 3½ inch rule. Included is a handy conversion table of pipe sizes to inside dimensions.

Constructed of heavy-gauge stainless steel, weighing two ounces, with an overall length (closed) of 4½ inches, and provided with a genuine leather slip case, the Wire-Mike, $1.95, is a lifetime tool for the desk, pocket, or kit of anyone working with wire.

For additional data, ask for item 5171, *using the card on page* 33.

Millers Falls jig saw converts electric drill

RECENTLY ANNOUNCED by the Millers Falls Co., Greenfield, Mass., is their new Dyno-Mite Jig Saw Attachment which easily converts any ¼-inch electric drill into a combination jig saw, hacksaw, rip, crosscut, keyhole and coping saw.



The No. 2140 has a capacity of 1½ inches in wood, ⅛ inch in metal. It is an extremely useful tool for sawing intricate patterns for brackets, valances and other decorative or odd shapes in wood or in sheet metal. No starting hole is required in wood, the blade cuts its own way through.

For additional data, ask for item 5172, *using the card on page* 33.

Entire connector line installed with one tool

A COMPLETE LINE of compression-applied distribution and service connectors was introduced recently by the Thomas & Betts Co., 36 Butler St., Elizabeth 1, N. J., together with an unusual, new hand tool for installing them. Based on the same principles as T&B Method transmission connectors, the new line features a square-shaped compression for all joints including those for the steel core wire of A.C.S.R. (Aluminum Cable Steel Reinforced.)

The entire, new connector line is installed with the new UT-5 tool, which weighs only five pounds. Range of conductors accommodated includes: No. 8 stranded to No. 2 stranded and solid copper; No. 6 solid to 2/0 stranded aluminum; and No. 6 to 1/0 A.C.S.R.

The UT-5 tool covers a conductor

WHY

AMPROBE
AMPERES
VOLT-AMMETER
VOLTS
PYRAMID INSTRUMENT CORP., LYNBROOK, N.Y.

settle for an ordinary voltage tester?

Ask yourself these questions	The AMPROBE Junior	ordinary voltage tester
Does it measure current as well as voltage?	YES	NO
Does it give you full visibility on a graduated reading scale?	YES	NO
Does it fit conveniently in your pocket?	YES	YES
Does it measure within ±3% accuracy?	YES	NO
Does it come in a full line of models to meet different problems?	YES	NO
Does it protect you against shorts and shocks?	YES	YES
Does it balance loads, locate grounds, determine motor overloads, check rating of circuit breakers?	YES	NO

The Amprobe Jr. gives you so much more! And the cost is only $19.85 (just a few dollars more than an ordinary voltage tester).

Why be half-equipped with just a voltage tester? The **Amprobe Jr.** meets *all* your testing needs...measures voltage and current instantly and accurately without shutting down equipment. All this with one rugged and inexpensive pocket-size tool!

There's an **Amprobe** model for every job, every budget: from 10 amp and 250 volts to 1200 amp and 600 volts AC; from $19.85 to $67.50. See them at your jobber's today.

Send for valuable **Amprobe** literature showing how you can do a better job in less time. Mail coupon now to: PYRAMID INSTRUMENT CORP., LYNBROOK, N. Y. (Export Div.: 458 Broadway, N. Y. 14), world's largest manufacturer of snap-around volt-ammeters.

Amprobe Jr.®
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Send For Free Service Bulletin

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Dept. ESM-55, Lynbrook, N. Y.

Please send me the Amprobe service bulletins checked below:

☐ How to cut costs and land more jobs
☐ Trouble-shooting electric motors
☐ How to boost service profits
☐ Electrical servicing of hermetic units

NAME __________

COMPANY __________

ADDRESS __________

CITY ________ ZONE ____ STATE ______

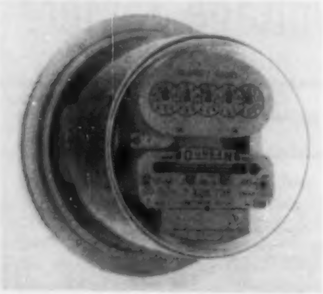
range that ordinarily would require several tools, says the company. This is made possible by supplying with the new tool three quickly interchangeable die blocks, each containing four installing grooves; the lower die is fixed and mates with any interchangeable die block.

For additional data, ask for item 5173, using the card on page 33.

Distribution equipment

Duncan adds Type MK singlephase meter

A RECENT ADDITION to the Type MK singlephase watthour meter line manufactured by Duncan Electric Manufacturing Co., Lafayette, Ind., is the 15-ampere convertible two-three wire meter for use either on a 120-volt two-wire or a 240-volt three-wire service.



This meter may be quickly converted from one to the other by loosening four screws and moving two links (one in the current and one in the potential circuit). When the conversion has been made, the meter need not be recalibrated as the inter-range accuracy is within close limits.

This 15-ampere two-three wire meter is of the extended range type and has full 100-ampere capacity when used either on a two or three-wire service.

The Type MK singlephase meter is now available in all 15-ampere ratings, bottom-connected or socket type, two or three-wire.

For additional data, ask for item 5174, using the card on page 33.

Morrison announces new service body line

AN ALL-NEW LINE of Morrison Service Bodies has been announced by Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7, N. Y.

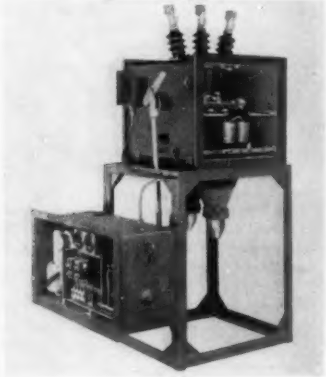
Completely new in design, engineering, materials, and production methods, the line offers models to fit 40 different truck chassis in ½, ¾, 1, and 1½ ton models, single or dual wheel.

There are a total of twenty-five new features of these Morrison Service Bodies. Outstanding are bonderized, all-steel welded construction with double lap-type joints, 18 different compartment arrangements, extra-large compartments which are lockable with all doors keyed alike, completely weatherproof compartments through the use of lap seals and gutter drains on all doors, 25 to 35 square feet of floor loading area, 12-gage, 4-way, safety tread, non-skid floor, hinged fender panels for easy access to wheels and spring shackles, and a complete line of new service accessories which can tailor any truck to the specific service, maintenance and construction needs of all the public utilities as well as the exact requirements of any of the service trades.

For additional data, ask for item 5175, using the card on page 33.

G&W automatic transfer mechanism announced

A NEW AUTOMATIC transfer mechanism has recently been developed by the G&W Electric Specialty Co., 7780 Dante Ave., Chicago 19, Ill., for use with oil switches, either double throw or two single throw units, supplying load from either of two feeders.



The mechanism automatically transfers the load from "preferred" feeder to "emergency" feeder when "preferred" feeder voltage fails. It throws back automatically when "preferred" feeder voltage is restored.

With Circuit F3A, the load is held on the emergency (after throwover) until a push button is manually operated.

With Circuit F3B, for use with diesel motor generator as the "emergency," throwover is delayed until diesel is automatically started and generator has built up voltage.

With Circuit F3C, with current transformers and latching relays, throwover is blocked in case of a short circuit on the load side.

With Circuit F6, either feeder may be selected as the "preferred" by manually operating a remote selector control switch.

The Model "F" mechanism is a watertight sealed housing. The mechanism unit is mounted on the steel supporting frame of G&W Type "RA" oil switches in 5000, 7500 and 15,000 volt ratings.

For additional data, ask for item 5176, using the card on page 33.

Multiple lug added to Ilsco Copper line

AN ADDITION to their line of connectors has been announced by Ilsco Copper Tube & Products, Inc., Cincinnati 27, Ohio.

Ilsco's LU-2 Multiple Lug is now available with a wire range for two 4/0 to two 1/0 cables in addition to LU4 and LU6 Multiple Solderless Lugs. The compact design permits the two cables to be installed in the space ordinarily required for one larger cable.

The wires are wedged between arched pressure bar and V-bottom collar. This establishes a "for keeps" grip on the conductors with positive contact assured at all times. It is simple in design and solderless connections are made quickly with socket wrench.

For additional data, ask for item 5177, using the card on page 33.

Secondary capacitor meets growing loads

A NEW FIVE-KVAR residential secondary capacitor, designed to assist utilities to meet the rapidly growing loads at decreasing power factor on distribution systems, has been announced by the General Electric Company's Capacitor Department, Hudson Falls, N. Y.

Features of this new residential secondary capacitor, rated five KVAR, 240 volts, single phase, include lower installed cost per KVAR, long life, a ground stud for easy grounding and a durable triple-coat case finish, provided by two coats of Melaglyp paint over a tin plated

drawn steel case. The rectangular, hermetically sealed, Pyranol filled case, provides the necessary characteristics for expansion due to temperature changes, in addition to reliable fuse co-ordination. The unit can be mounted directly on the pole, or on the crossarms, with the bushings pointing up or down.

An outgrowth of the growing trend of utilities to take advantage of the benefits of secondary capacitors, the new five-KVAR capacitor, like the company's three-KVAR unit, can be used to improve voltage, reduce losses and release thermal capacity over and above these same benefits obtained from the primary capacitors on the system.

For additional data, ask for item 5178, using the card on page 33.

Line Material offers packaged substations

COMPLETE, OUTDOOR, packaged substations — from the incoming-line strain insulators to the outgoing low-voltage feeder terminals—are now being offered by the Line Material Co., 700 W. Michigan St., Milwaukee 1, Wis. All components are co-ordinated to provide a standardized well-engineered package. Standard designs are available at any kva capacity.

L-M packaged substations include a newly designed galvanized steel structure that affords ease of installation, economy of steel, and versatility of application. Meeting all NEMA requirements, the structure is completely prefabricated and shipped disassembled for field erection.

For additional data, ask for item 5179, using the card on page 33.

Nelson Electric offers five and 15-kv breakers

DESCRIPTIVE LITERATURE of a five and 15-kv class circuit-breaker arrangement known as a replacement unit has been issued by Nelson Electric Manufacturing Co., 217 N. Detroit, Tulsa, Okla.

The purpose of this unit is to economically replace obsolete circuit-breakers of insufficient interrupting capacity by modern draw-out assemblies without the time and expense of having to replace the

You'll save time, trouble, money

with the
KEYSTONE
QUALITY LINE
WIREWAYS AND FITTINGS · CUTOUT AND PULL BOXES
SWITCH BOXES · OUTLET BOXES · BAR HANGERS

Fishin' for fish is fun! But when you're fishin' for extra profits on wiring installation jobs, the line to use to land your limit is the Keystone Quality Line. Because every item is *priced right* to help you "catch" more jobs. And every item is built right, too, to save you time and trouble . . . help you "net" bigger profits!

KEYSTONE WIREWAYS and Auxiliary Fittings have all the time-saving, money-saving features your customers want. They're quickly, easily installed, readily adaptable to any power distribution system. Available, too, in both flanged and flangeless styles and a wide range of sizes and lengths . . . from 2½" x 2½" x 1 ft. through 8" x 8" x 5 feet long.

KEYSTONE CUTOUT BOXES and Pull Boxes are furnished in Type "A" with hinged cover, Type "SC" with screw cover. Both feature a formed construction strongly fabricated and securely welded . . . with adequate, easily removable knockouts. And both types are available in a complete range of sizes . . . stocked for prompt delivery to meet your needs.

KEYSTONE SWITCH BOXES and Outlet Boxes are loaded with extra quality features! BX or Romex clamps are already assembled with nested fit for easy pulling of wires. Knockouts and pri-outs come out double quick. And tapped holes are extruded to provide extra thickness, eliminate stripping of threads. Even mounting brackets make installation easier.

See us at Booth No. 123, N. A. E. D. 47th Annual Convention, Conrad Hilton Hotel—Chicago, May 22nd through 25th.

KEYSTONE MANUFACTURING COMPANY
23328 SHERWOOD AVENUE • CENTER LINE (Detroit) MICHIGAN

It pays to figure on Keystone

. . . the Complete Line of Wiring Installation Equipment
Sold Only through recognized Electrical Distributors

existing enclosures and instrumentation.

This replacement unit is a packaged assembly consisting of a compact 24-inch wide cubicle, complete with a truck mounted circuit-breaker, fully interlocked. The breaker has been extensively short-circuit tested by an independent laboratory.

Nelson circuit-breaker ratings are 2,300; 4,160; 4,800; 7,200; and 13,800 volts; 50 to 500 MVA interrupting capacity; 600-1600 amperes continuous.

For additional data, ask for item 5180, *using the card on page* 33.

Porcelain offering new dead end clamp

A new malleable iron dead end clamp for hot line work, featuring "Captured Keeper" U-bolts fastened directly to the keeper, has been announced by the High Voltage Division, Porcelain Products, Inc., Parkersburg, W. Va.

Cable range for the new clamp is .20 inches to .50 inches. It is ideal for hot-line application, maintenance work, and also speeds installation on original construction.

It is suitable for use on ASCR No. 4 through 1/0; it is also suitable for use on copper, copper weld, or Amerductor. The clamps can be furnished with aluminum or copper-liners if desired.

For additional data, ask for item 5181, *using the card on page* 33.

New aerial equipment, Tree King, announced

Maxwell Equipment Co., Ford St., Milford, Conn., national distributors of the Hydro Sky-Worker, have announced the development of an entirely new piece of aerial equipment known as the Tree King.

The company states that the Tree King was developed at the request of industrial and utility operating executives intent on securing an efficient low-cost aerial device.

Mounted on a conventional truck chassis, the unit enables a crewman at the controls to place himself at a comfortable working height of 45 feet from the ground. Horizontal working reach from the turret is 32 feet with a working load of 300 pounds.

Radical design changes provide a higher degree of maneuverability, greater height and longer reach than earlier company models. The lower boom, moving through an overhead arc of 135 degrees, 45 degrees past vertical, results in a material reduction of operating time in reaching areas above, between and behind utility lines.

For additional data, ask for item 5182, *using the card on page* 33.

USCO's GT-22 switch made through 230-kv

Announcement has been made by USCO Power Equipment Corp., P. O. Box 629, Birmingham 1, Ala., that their Type GT-22 twist-blade, vertical-break disconnecting switch is now available through 230-kv, 1200 amperes.

Through the use of a simple operating mechanism the "rear" stack of insulators is rotated to effect the opening and closing of the GT-22. This big switch employs high-pressure, line-type contacts in the hinge as well as in the jaw, there being no braided shunts employed whatsoever.

Current-transfer materials in these contacts are pure-coin silver and bus-bar copper. Design of the blade-operating mechanism includes two positive "locks" which hold securely the blade inside the jaw contact, eliminating the need for a "stop" of any kind within the jaw contact itself.

Extreme ease of operation is made possible through USCO's double-gin-pole mechanism, characteristic of USCO's GT series starting as low as the 7.5-kv rating.

Particular emphasis was given to accomplishing the straightest in-line profile of the current path in this big switch. Type GT switches are available in voltages from 7500 to 230,000 with current ratings from 400 to 1200 amperes.

For additional data, ask for item 5183, *using the card on page* 33.

Transformer guard designed by Hubbard

Hubbard and Co., 6301 Butler St., Pittsburgh, Pa., have designed a simple transformer "Squirrel Guard" to overcome the frequent trouble caused by birds and animals creating outages.

The guard is funnel shaped, formed of wet process porcelain, brown glazed. It fits over any type of transformer bushing and approximately doubles the distance from hot to grounded parts, greatly reducing the danger of birds or animals shorting out the bushing.

For additional data, ask for item 5184, *using the card on page* 33.

Anaconda expands line of cable accessories

To provide an added service to cable users and to meet the electrical industry's demand, Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y., recently added soldersealed potheads to its line of cable accessories. Increasing interest in the soldersealed type is partly due to the necessity for tighter seals because of the tendency toward freer-flowing oils in potheads and cables and more severe load-temperature cycles.

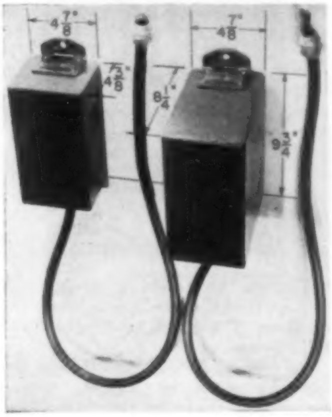
These soldersealed potheads are available for prompt delivery from a large stock of parts; single conductor, outdoor type, 15,000-46,000 volts, all conductor sizes, for use with single- or three-conductor cable.

For additional data, ask for item 5185, *using the card on page* 33.

Weatherproof capacitors feature compact design

A NEW LINE of weatherproof capacitors for outdoor or indoor application on 460-volt distribution systems is available from the Westinghouse Electric Corp.

Compact design in a wide range of ratings makes the new capacitor ideal for power-factor improvement on isolated installations, such as oil field and irrigation pumping motors. When connected on the load side of the motor starter, there is no need for a separate switch.



Aluminum-case construction provides permanent protection against corrosion or atmospheric conditions. A flexible cable allows installation by direct or conduit connection.

All units are 3-phase, 460-volts. The smaller unit is rated at 2 and 3 kvar; the larger at 4, 5, and 6 kvar. The capacitors weigh from 10 to 25 pounds.

For further information, write Westinghouse Electric Corporation, Box 2278, Pittsburgh 30, Pa.

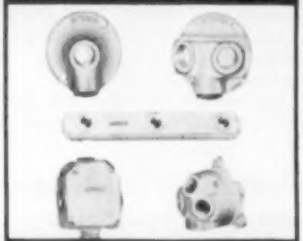
For additional data, ask for item 5186, *using the card on page* 33.

Locke announces new line of station post insulators

LOCKE DEPARTMENT, General Electric Co., P. O. Box 57, Baltimore, Md., is introducing a new line of station post apparatus insulators. These insulators are specially designed to reduce corona and radio interference. They offer excellent protection against flashover and service interruption due to industrial contamination and fog. The

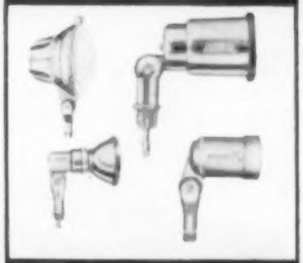
NEW STEBER LIGHTING UNITS CUT INSTALLATION TIME AND COSTS

MATCHED UNITS MAKE THE JOB EASY



The Steber line, containing hundreds of lighting units and fittings, gives you a complete selection of durable, low cost matched units that simplify and speed every installation. Their greater adaptability assures specified lighting results as well as better appearance and lifelong satisfaction. Lighting units are fully wired with ample leads.

STEBERLITES



STEBER FITTINGS

Versatile Steberlite fittings make all jobs easier, more economical, cut wiring time and installation costs. Lifetime cast aluminum units are available for single or clusters of up to 8 Steberlites. Each unit is designed to do a specific job better and fit perfectly with all Steber fittings and Steberlite units.

FLOODLIGHTS

STEBERLITES

Steberlites are available now in a wide choice of styles to meet your specifications exactly. No. S300 medium base and S350 mogul base provide universal adjustment for casting light in any direction. These units use medium or mogul base PAR-38 and R-40 sealed beam lamps. S400 accommodates PAR-56 Flood or Spot lamps. S500 is a chrome plated medium base Steberlite, using PAR-38 and R-40 sealed beam lamps.

HIGH BAY UNITS

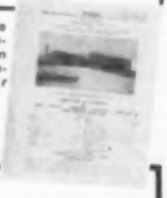
All aluminum construction prevents damage caused by corrosive atmospheres.

STEBER FLOODLIGHTS

Steber Floodlights are ideal for lighting parking lots, construction projects, shipping and receiving docks, service stations, railroad yards, sports areas and wherever economical high intensity is required. Available for 100 to 1500 watt lamps with or without lens. Full choice of styles and mounting bracket assemblies.

Sold through leading wholesalers

Write for complete Catalog TDS-9 containing information and prices on hundreds of Steber items!



STEBER

STEBER MANUFACTURING CO.
Dept. 56
Broadview (Maywood P.O.), Illinois

STEBER MANUFACTURING CO.
OF CALIFORNIA
242 S. Anderson St.
Los Angeles 33, California

STEBER-WOODHOUSE, LTD.
2368 Dundas St. West
Toronto, Canada

new line consists of six units, with voltage ratings ranging from 7.5 to 69-kv.

Wider hood spacing, an important new design feature, results in more effective natural cleaning by wind and rain, easier hot line washing and increased effectiveness of leakage surface.

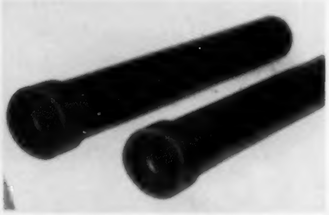
A new, extremely effective, seal of the internal cavity provides full dielectric strength throughout the insulator's life and puncture-proof performance even under direct lightning strokes.

For additional data, ask for item 5187, using the card on page 33.

Plymouth Products adds new type plastic pipe

A NEW TYPE plastic bell and slip pipe has recently been developed and announced by Plymouth Industrial Products, Inc., P. O. Box 27, Plymouth, Wis.

This company has successfully perfected a formulations and molding process to produce a plastic molded pipe which is fitted together and aligned merely by a bell and slip juncture, which will increase greatly the speed of laying underground duct.



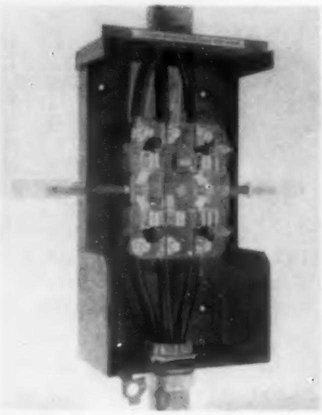
This duct, made in 30-inch lengths, is rot-proof, light, easy to handle, with no special tools needed for installation, and it is inert to most all common conditions of exposure.

For additional data, ask for item 5188, using the card on page 33.

Duncan mounting device has 150-ampere capacity

A SOCKET MOUNTING device similar to the Duncan 200-ampere HD (heavy duty) device, but with less capacity, has been introduced by Duncan Electric Manufacturing Co., Lafayette, Ind.

Termed the Type MD (medium duty) device, this equipment provides a maximum capacity of 150-amperes, using a minimum of 2/0 conductors. The device may be converted to full 200-ampere capacity, if the initial conductors are of sufficient capacity or the conduits are large enough to take the necessary conductors, by simply changing to the HD 200-ampere block, either three or four-wire.



The convenience of load bypassing, and the ease of inspection, makes the MD device ideally suited to all three and four-wire services up to 150-ampere maximum capacity.

For additional data, ask for item 5189, using the card on page 33.

Electric Service adds new lightning arrester

A DISTRIBUTION valve type lightning arrester has been designed with an external isolating line gap, available in 9-kv and 10-kv maximum permissible line to ground voltage rating. Manufactured by Electric Service Manufacturing Co., Philadelphia 32, Pa., the arrester retains all the advantages in protection inherent in the Crystal Valve type arrester with non-linear resistance valve characteristics and in addition, the feature of the external line gap to prevent possible line lock out.

The protective characteristics are essentially the same as the present style Crystal Valve arresters without the isolating gap feature. This improvement is accomplished without additional length over that of present stud type arresters.

This arrester is available with internal spark gap construction ventilated and non ventilated.

For additional data, ask for item 5190, using the card on page 33.

G-E offers new series of line-type arresters

AN ENTIRELY NEW and extended series of line-type arresters, improved to provide 20 per cent lower discharge voltage and 10 per cent lower sparkover voltage than the preceding series, has been announced by the General Electric Company's Distribution Transformer Dept., Pittsfield, Mass.

25
20
15
12
9
6

The range of the new series has been extended to include ratings from three through 121 kv.

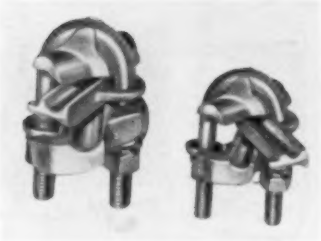
Called Thyrite Magne-valve line-type arresters, the units employ the principle of magnetic action aiding valve action. This design of the equipment permits discharge of lightning or surge currents through the valve elements to ground and extinguishes power-follow current by the action of magnetic coils exerting an arc-quenching force in the arrester gap. This Magne-valve principle was introduced in the company's station-type arresters last year.

The new arresters have a gap unit and magnetic coil that operate in conjunction with an improved composition of Thyrite valve disks having low resistivity (for low IR discharge voltage) and increased discharge capacity.

For additional data, ask for item 5191, using the card on page 33.

L-M develops new U-bolt clamp line

ALUMINUM U-BOLT clamps of a hinged type have been developed by Line Material Co., 700 W. Michigan St., Milwaukee 1, Wis. They are made of corrosion-resistant, high-strength aluminum alloy. Two clamps are available—one designed to accommodate conductors in sizes from No. 6 ACSR to 2/0 ACSR, and the other to accommodate sizes from



2/0 ACSR to 336.4 MCM ACSR.

The angular position of the galvanized steel U-bolt with respect to the conductors exerts a uniform clamping force on the conductors. The force is of sufficient magnitude to hold conductors to loads in excess of their rated tensile strength without slippage.

Hinging action of the lower clamp and keeper saves considerable installation time. The keeper is made of soft aluminum in order to protect the conductors from excessive compressive forces and to minimize cold flow of the conductors. A patented cupped washer locks in both bottom clamp and keeper to insure positive clamping.

For additional data, ask for item 5192, *using the card on page* 33.

G-E closing device uses liquid carbon dioxide

A NEW TYPE of circuit breaker closing device which uses liquid carbon dioxide as the source of closing power has been announced by the General Electric Company's Medium Voltage Switchgear Dept., Philadelphia, Pa.

The new equipment, designated as the "Cooperator" closing device operates independently of the regular source of control or closing power in a station. It is portable and has adequate power to close the breaker against fault currents equal to its full momentary rating.

The "Cooperator" has a standard 10-pound bottle of carbon dioxide as a source for stored energy, a regu-

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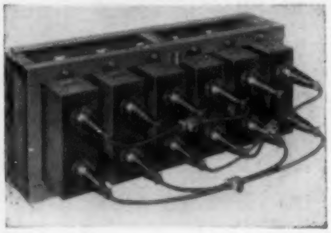
lating valve, an intermediate receiver for holding the required amount of carbon dioxide gas for each closing operation at about 220 pounds per square inch, a control valve which releases the gas from the intermediate receiver to close the breaker, and a power cylinder and piston for closing the circuit breaker arranged to be placed under the circuit breaker closing solenoid plunger.

The device will close all current designs of magne-blast circuit breakers in the interrupting range from 100 to 500 mva as used in both indoor and outdoor metal-clad switchgear.

For additional data, ask for item 5193, using the card on page 33.

Westinghouse capacitors for secondary networks

Completely assembled capacitor equipments ready for installation on secondary network systems are available from the Westinghouse Electric Corp., Pittsburgh, Pa. The apparatus is especially applicable for use on urban distribution systems where there is air-conditioning and other low power factor equipment.



The capacitor units are Westinghouse standard outdoor type, rated at 13 1/3 kvar at 216 volts. Assembled equipments are available for 40, 80, and 120 kvar, three phase. Modular-type construction permits them to be stacked three high, or otherwise arranged to fit available vault space.

The equipment is completely submersible. Enclosed current-limiting fuses are terminal mounted. The capacitor units are zinc sprayed, and the frame is galvanized.

For additional data, ask for item 5194, using the card on page 33.

Line Material develops heavy duty oil switch

A new type VR, heavy-duty, remote-control oil switch has been developed by the Line Material Co., 700 W. Michigan St., Milwaukee 1, Wis. The VR switch has been designed for capacitor switching, distribution feeder sectionalizing, and automatic load transfer applications. It has a 110-kv BIL, a 20,000-ampere momentary rating, and a 400-ampere thermal rating. A VR switch trips and clears all three phases simultaneously in three cycles.

An auxiliary switch that provides flexibility for relaying and signal schemes is available with the VR switch. Other accessories offered include signal arresters, 15-inch creepage bushings, a heating element, and a plug and receptacle connection.

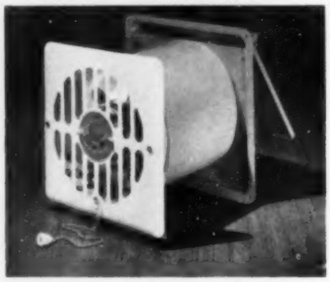
For additional data, ask for item 5195, using the card on page 33.

Fans and Blowers

Clear-Aire fan offers chain switch operation

Featuring chain switch operation, the eight-inch, 675 cfm Model WSAS is one of a complete line of exhaust fans being offered to the trade by the Sin-Jin Products Co., 5236-40 Fairlawn Ave., Baltimore 15, Md.

The WSAS eight-inch standard model features a 11⅛ by 11½-inch silver-gray metallic grill. It also offers nine-inch diameter telescopic sleeves. The brick model extends nine to 12 inches, and the frame model, 4¾ to seven inches. Longer extensions are available upon request.

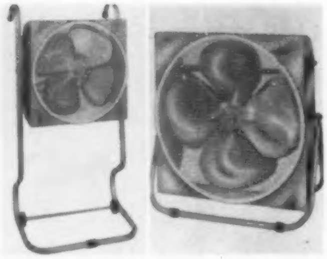


This fan unit has an AIRistocrat five-blade, one-piece type propeller. It is UL approved, 110 volts, 50/60 cycles a-c, 1550 rpm.

For additional data, ask for item 5196, using the card on page 33.

Rex-Airate line has direct drive portable

The 1955 line of Rex-Airate window fans announced by Air Controls, Inc., 2310 Superior Ave., Cleveland 14, Ohio, includes the versatile, yet moderately priced "Airtrol," a new 20-inch direct drive portable model that will exhaust up to 3,250 cfm. It may be used in the window with or without side panels, to blow either in or out. Or, it can be removed from the window and used as an air circulator.



Two handy accessories are available for use with the "Airtrol"—the "Rolla-Stand," a tubular frame with rubber-tired wheels for easy transportation, and the "Adjusta-Stand" that serves as a wall mount or adjustable base. The "Rolla-Stand" permits the fan to be raised as high as 56 inches above the floor and locks it at any angle.

"Airtrol" is unusually quiet in operation due to its four balanced one-piece aluminum blades and X-type rubber cushioned motor mount. It is equipped with a dependable two-speed motor and has both front and back grills for added safety. The cabinet is finished in gray Hammerloid baked enamel; the grills are white.

For additional data, ask for item 5197, using the card on page 33.

New attic package unit highlights Coolair line

The Coolair line for 1955, manufactured by American Coolair Corp., Jacksonville 3, Fla., includes everything from the pretty little 20-inch SlimJim window fans up to nine-foot industrial giants that handle 154,000 cfm.

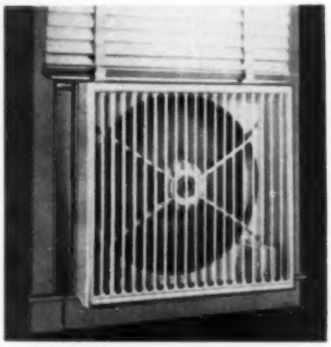
To name a few, there are the Heavy Duty belt driven, spring-mounted, six-bladed window fans from 24 to 32 inches in blade diameter. Then comes the old standby, Coolair's H Fan series. These are ultra-quiet, spring-mounted, eight-blade units up to 62 inches in blade diameter for installation at any angle in attics, windows, walls or gables. The H Fans, like their heavier duty C (for commercial) Fan counterparts, come in both single and twin units. And then there are the S and SX units, eight and nine-foot units that are the largest in the line.

This year, Coolair has come up with two new units, the new Decorator SlimJim window fan line and an entirely new attic package unit, called the P Fan.

For additional data, ask for item 5198, using the card on page 33.

Bar-Brook window fan has oscillating louvers

A NEW WINDOW FAN, Model OW-222, with 90 degree oscillating louvers, has been introduced by the Bar-Brook Manufacturing Co., Inc., 6135 Linwood Ave., Shreveport, La. The adjustable wings, to fit 27½ to 37-inch windows without screw holes, will not mar facing.



Louvers can be set at any selected angle if oscillation is not desired. Entire unit has ivory-white baked enamel finish with a height of 25 inches and a total depth of 8½ inches.

The fan blade opening measures 22 inches and the fan is powered by a two-speed motor. It reverses electrically. Separate motor activates oscillating louvers.

Other models in the Bar-Brook line include 22 and 30-inch window fans; 30 to 54-inch attic type fans for vertical or horizontal operation, and 30, 36, and 42-inch package unit attic fans that are completely assembled and wired, ready to be installed.

For additional data, ask for item 5199, using the card on page 33.

Hartzell Propeller adds backward curved blowers

A COMPLETE LINE of non-overloading centrifugal blowers with backward curved blades is now available from the Hartzell Propeller Fan Co., Piqua, Ohio.

Included in the new line are 12 belt-drive utility blowers, 12¼ inches to 36½ inches; 11 direct-drive utility blowers, 12¼ inches to 33 inches; 12 Arrangement 2 blowers, 12¼ inches to 36½ inches; eight Arrangement 3 blowers in single

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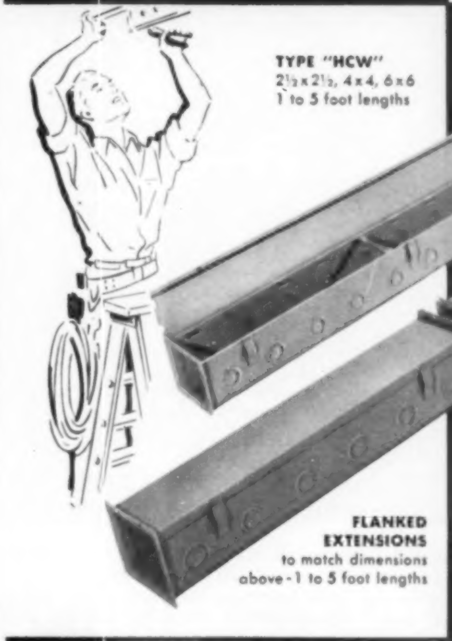

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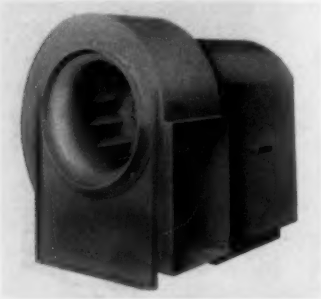
width, single inlet construction, 24½ inches to 49 inches; and 15 Arrangement 3 blowers in double width, double inlet construction, 12¼ inches to 49 inches.

All of these rugged, quiet blowers have arc-welded steel frames and heavy gauge steel housings. Ball-bearing construction is standard on all models. Motors to meet any current characteristics and special operational requirements can be supplied.

Wheels have heavy steel backward curved blades welded to heavy side plates which are bolted to a cast iron hub. All wheels are dynamically balanced to insure vibration-free operation.



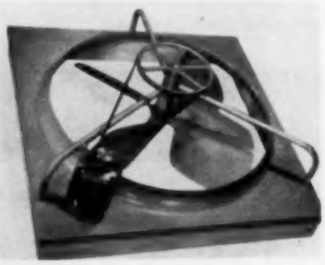
Special equipment, optional at extra cost, includes weatherproof drive covers, vibration bases, inlet and outlet guards, inlet and outlet flanges, back draft dampers, sleeve bearings, brass wheels and bolted access doors.

All Hartzell blowers are shipped assembled for clockwise rotation, bottom horizontal discharge. Housings, fastened by eight bolts, may be easily rotated for any of eight discharge positions at time of installation. Counterclockwise rotation, when specified, is supplied at no extra cost.

For additional data, ask for item 5200, *using the card on page* 33.

Consolidated markets new attic fan line

A NEWLY-DESIGNED attic fan line will be marketed this year by Consolidated General Products, Inc., 2401 Nicholson, Houston, Texas. To be trade-named the "Conso Windmaster," the fans will be available in sizes ranging from 24 to 48 inches, and are powered by General Electric's new general-purpose thermal overload motors.



The fans will be available from Consolidated's factories in Houston, Dallas, San Antonio, New Orleans, Atlanta, and Tampa, as well as Consolidated's growing distributor organization.

The Conso Windmaster will operate in either a vertical or a horizontal position, and is fire-protected by the thermal overload switch built into the motor. In case of a sudden rise in temperature, the motor automatically shuts itself off and can be reset when the temperature has dropped. The fans all carry approval of the Underwriter's Laboratories and have been rated as to efficiency of operation in accordance with the Standard Test Code evolved by Texas A. & M. College.

Consolidated also produces an aluminum ceiling shutter to be used in conjunction with the attic fans. The new shutters will feature Nylon bearing pins for silent operation, fusible links which automatically close the shutter in case of fire, and continuous aluminum louvers finished with baked-on enamel for smooth appearance.

For additional data, ask for item 5201, *using the card on page* 33.

New window fan timer shuts off automatically

ATLAS-AIRE has added a fan timer (Model FT20) as an accessory to its 1954 window fan line. The timer automatically turns off the fan at a predetermined time and results in reduced current costs, longer fan life and increased comfort and convenience to window fan sleepers. Atlas Tool & Mfg. Co., 5147 Natural Bridge Blvd., St. Louis 15, Mo., regards the accessory particularly appropriate for its multiple-purpose Port-About models.

ATLAS-AIRE
fan timer

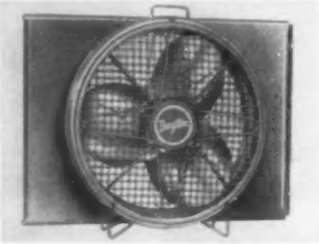
The timer may be used with any fan up to 1/3 hp, 120 volts, 60 cycle a-c. Its cord is plugged into any convenient electrical outlet with the fan cord plugged into the timer. The timer is set at the desired number of hours' operation and the fan automatically shuts off when the time is up. It may be set for any time up to 20 hours.

The Model FT20 is small, compact and attractively designed. Its neutral gray and green finish blends inconspicuously with other colors.

For additional data, ask for item 5202, *using the card on page* 33.

Dayton window fan does triple duty

A NEW THREE-WAY fan being offered by Dayton Electric Manufacturing Co., 126 S. Oakley Blvd., Chicago 12, Ill., serves as a window exhaust fan, a window blow-in fan, or as a portable air circulator. The 20-inch, three speed fan unit is retained in window panel with two simple, but positive, spring lock hooks.



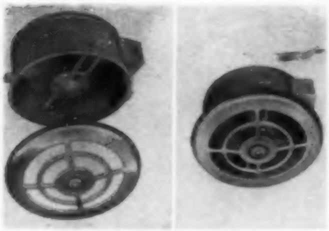
The fan unit can be easily reversed in the panel or removed for portable use. It is 20½ inches in diameter and eight inches deep, and has a rigid steel frame with chromed wire mesh guard on both sides. The quiet 20-inch aluminum fan blade delivers 3250/2210/1600 cfm. The 1000 rpm, 115 volt, 60 cycle, three-speed motor has a four-position switch.

The rolled edge window panel is 22 inches high by 30 inches wide and extends to 39 inches. The panel and fan frame are finished in warm gray enamel.

For additional data, ask for item 5203, *using the card on page* 33.

Thermador ventilators feature snap-in motor

NINE AND 11 INCH ventilating fans have been added to the quality products of the Norris-Thermador Corp., 5215 S. Boyle Ave., Los Angeles 58, Calif. Designed for complete ventilation in kitchen, bath and utility rooms, the Thermador TVF nine and TFV 11-inch ventilating fans are reported as 25 to 30 per cent more efficient than standard 8½ x 10½-inch makes now on the market.



Thermador ventilating fans feature low-cost, efficient ventilation; laboratory tested snap-in powerful motor with quiet operation; balanced, vibration-free five-blade, pressure type fans. The highly polished chrome grille is easily removed for periodic cleaning. In addition, motor and fan are installed in special hanger housing, thumb screw holds grille and motor assembly in position.

For additional data, ask for item 5204, using the card on page 33.

Viking blower offers 12 motor mounting locations

A NEW UNIVERSAL BLOWER which can be mounted in any of the four standard discharge positions and offers 12 motor mounting locations has been introduced by Viking Air Conditioning, 5601 Walworth Ave., Cleveland 2, Ohio. The Universal units are furnished to furnace manufacturers with feet, motor bracket and sheet metal screws shipped unassembled to permit the manufacturer to assemble for any of four desired discharge positions and motor location.

Housing sides are pierced and slotted, making for fast and easy mounting of feet and motor on the manufacturer's production line. Extensions on both ends of the shaft permit the drive to be mounted on either side.

Advantages of the Universal blower—which is available in all widths of the nine and 11 inch blowers—are that it gives the furnace manufacturer greater flexibility with a smaller inventory, and reduces stock handling in his factory.

For additional data, ask for item 5205, using the card on page 33.

Lau Blower introduces 'little brother' fan

LAU BLOWER CO., 2019 Home Ave., Dayton 7, Ohio, has announced a new "little brother" to its already established "Niteair" Rancher fans as part of its 1955 line.

The new product is a 22-inch fan and has been added to a line already featuring 24, 30, 36 and 42 inch fans designed as residential exhaust cooling devices. Though the new fan is smaller than its colleague, it does

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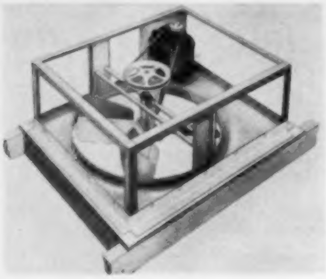
a man-size job of moving air at the rate of 3800 cfm. It uses a 1/3 hp motor, and was designed specifically for use in modern small homes with pre-fabricated truss roof construction.

The 22-inch "Niteair" Rancher will fit between joists on 24-inch centers simply by moving one truss brace. No cutting is required. The new fan comes completely assembled and ready for installation; or as a "Kooling-Kit," knocked down for installation by the home handyman.



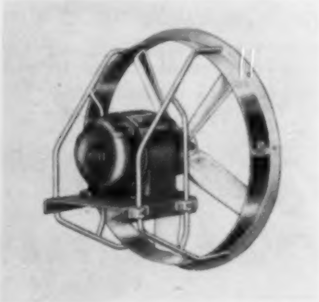
The new addition to the line has all the features of the larger fans, including sturdy all-welded construction, thermal overload protector in the motor; rubber cushion mounting for quiet operation; and lifetime lubricated sealed ball-bearings. It is belt driven for maximum air pull and can be used for vertical as well as horizontal placement.

For additional data, ask for item 5206, using the card on page 33.

Direct driven fan for industrial application

A HEAVY DUTY direct driven fan for industrial application and service industries where a large volume of air is required under static pressure has been developed and added to the complete line of fans manufactured by the M & E Manufacturing Co., 2533 Winthrop Ave., Indianapolis 5, Ind.

Where positive low cost ventilation exhaust is needed to remove fumes, vapors, smoke, and dust, the "axial flow" principle of the design of the M & E heavy cast aluminum alloy blade shows its high operating efficiency.



The ring mounted units are available in diameter sizes from 12 inches, delivering 980 cfm, to 48 inches, delivering 32,400 cfm. Totally enclosed motors are furnished with the fans providing the user with a minimum amount of installation labor.

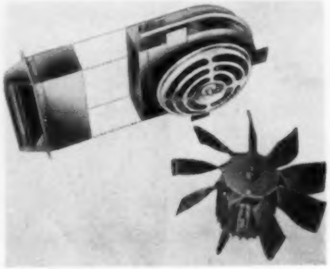
Performance specifications and descriptive data are available on request from the company.

For additional data, ask for item 5207, using the card on page 33.

New Fasco fan offers improved performance

NEW DESIGN of the popular 10-inch Fasco Ceil-N-Wall ventilating fan, resulting in improved performance at lower noise level, has been announced by Fasco Industries, Inc., 37 Augusta St., Rochester 2, N. Y.

The Fasco Model 1021, already in production, with the new nine-pedal Turbo-Radial impeller, embodies the latest design in air moving equipment. The new ventilating fan moves air with the quietness of a blower and the capacity of a propeller, the company states.



Noise caused by moving air at high speeds has been substantially reduced through research at the Fasco laboratories. Air delivery and other specifications remain unchanged. The new 10-inch Fasco Ceil-N-Wall ventilating fan will deliver 530 cfm at highest of three speeds through 10 feet of duct.

The company indicated that prices will not be advanced on the new model.

For additional data, ask for item 5208, using the card on page 33.

Hunter attic fans give economical home cooling

AN ECONOMICAL home cooling and ventilating system in one compact unit, the Hunter Package Attic Fan comes in four sizes to fit the needs of any new or old home. Manufactured by Hunter Fan and Ventilating Co., 400 S. Front St., Memphis, Tenn., it delivers from 5,000 to 16,000 cubic feet of air per minute, depending upon the model.

It features an automatic ceiling shutter which will fit even narrow hallways. These modern ceiling shutters operate automatically and are controlled by a wall switch or time switch.

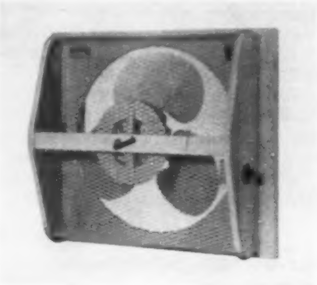
The Hunter Package Attic fan is guaranteed for five years. It rests on the attic floor or on joists.

For additional data, ask for item 5209, using the card on page 33.

Reversibility feature added to Reed RDD-20

INCORPORATION of one of the outstanding features of their RTS Wind-O-Vent line in their popular RDD-20 model, which originally came out in 1954, has been announced by Reed Unit-Fans, Inc., 1001 St. Charles Ave., New Orleans, La.

The RDD-20, a two-speed, direct drive window fan, designed for the smaller living unit proved so successful that Reed has created for 1955 the new RDD-20R, which incorporates all of the features of the RDD-20 plus a new one—reversibility.



Small, compact and streamlined, the new RDD-20R is a 20-inch window fan, which will comfort-cool small apartments or single-rooms, such as a bedroom or kitchen. All-steel electro-welded construction eliminates rattles, and a close-mesh wire guard assures complete safety.

Installation takes only a matter of minutes and expansion panels assure an accurate fit.

Both the RDD-20 and the new RDD-20R have a lustrous, long-lasting baked-on enamel finish to blend with any decor.

For additional data, ask for item 5210, *using the card on page* 33.

Ventilator combines fan, light and hood

A NEW IDEA in kitchen ventilating hoods has been announced by Pryne and Co., Inc., Keyser, W. Va. It is a fan, light and hood combination that saves cabinet space, is exceptionally easy to install and is easier to clean.

The exhaust fan is a Model 209 Blo-Fan and the light is a 100-watt Pry-Lite recessed fixture. Both are wall switch operated.

This new Pryne Model 219 Ventilator Hood Combination is 42 inches wide to fit standard cabinets and requires only 4½ inches above the bottom cabinet shelf. The hood is finished in DuPont Duluxe White or Copper-Toned Enamel.

Unlimited accessibility for cleaning is another advantage offered. For quick cleaning, two thumb screws loosen by hand to lower the entire hood. If desired, the hood can be lifted completely off for cleaning outdoors, although fan and light remain in cabinet at all times.

For additional data, ask for item 5211, *using the card on page* 33.

Automatic floor fan presented by Signal

A NEW FAN with thermostatic control, said to be the industry's first automatic floor fan, appears in the 1955 line manufactured by Signal Electric Division of King-Seeley Corp., Menominee, Mich.

The same model is the first floor fan to feature a molded Free-Flow Grille for no-draft Breeze-Diffuser action, according to Signal. A Hideaway Handle pulls up for portability so this model can be used as a floor and multi-purpose fan.

Other Signal automatic floor fan features include: an electrically-reversible, two-speed motor; dif-

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3. **Just 2 lengths of channels and 4 basic reflectors form backbone of "Magna-Flo" systems!**
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No matter where you want fluorescent light . . . high ceilings or low ones, assembly lines or drafting rooms, inspection or mass-production lighting . . . there's a "Magna-Flo" System to exactly match the need. Bulletin 5705 brings you complete details. For your free copy write:

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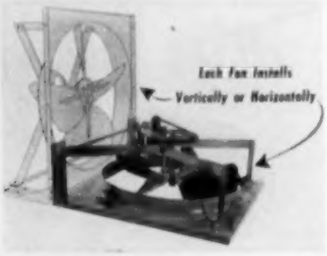
fused or direct cooling in either direction; air stream adjustable through 360 degrees; available in 12-inch blade size model delivering 1300 cfm (NEMA) or 16½-inch blade size unit for 3000 cfm (NEMA).

Signal floor fans are UL approved, do not interfere with radio or TV reception, and carry a full five year guarantee.

For your free copy, ask for number 5212, using the card on page 33.

New attic fan line offered by McLean

McLEAN ENGINEERING Laboratories, P. O. Box 228, Princeton, N. J., have introduced a new line of popular priced attic fans available in 20 through 42-inch sizes. An unusual feature of the line is that each fan is suitable for either horizontal or vertical discharge installation. The fans fit ranch house ceiling or multi-story attic endwall and are recommended for use in living space floor areas up to 1600 square feet.



These new McLean fans can be installed quickly and easily. The sturdy fan assembly fastens to the house structure without adding springs, rubber or canvas connections, thus reducing installation time and materials. The fans are easily disassembled for areas of restricted access.

Each McLean fan is scientifically designed for ultra-quiet operation. They include built-in soft rubber vibration absorbers, rubber-mounted main bearings and flex-steel frame.

For your free copy, ask for number 5213, using the card on page 33.

Free bulletins

available to our readers

Metal-clad switchgear rated 2.4KV to 13.8KV and 50 to 500 MVA is comprehensively described in Bulletin GEA-5664C, recently published by **General Electric Co.**, Schenectady 5, N. Y.

The four-color, 52-page publication includes detailed discussion of applications, installation, maintenance, advanced design features, accessories, etc. Of special interest are tables of dimensions and weights, foundation data, and guide form specifications for many applications.

For your free copy, ask for number B5214, using the card on page 33.

How compact, enclosureless packaged power at load centers effects installation and operating economies, while stepping-up production and providing for future load demands, is explained in a new 16-page Bulletin No. 102, **"Continental Unit Substation,"** available from **Continental Electric Equipment Co.**, Box 1055, Cincinnati 1, Ohio.

Continental Unit Substations are illustrated and described on platforms, balconies, basements, outdoors and in production areas. All the popular types of high voltage section equipment, four types of transformers, and three types of low voltage switchgear are also shown and explained. Outdoor "Weather-Loc" construction is included.

For your free copy, ask for number B5215, using the card on page 33.

Technical aspects of Magamp® **magnetic amplifiers for control applications** are discussed in a 20-page booklet (Technical Data 52-600) now available from the **Westinghouse Electric Corp.**, P. O. Box 2099, Pittsburgh 30, Pa.

The booklet explains the basic theory underlying magnetic amplifiers and gives information necessary for application as well as operating characteristics.

Introducing the section on magnetic amplifiers operation is a glossary of technical terms as proposed by the AIEE Magnetic Amplifier Sub-Committee. Those sections of the booklet dealing with component parts, applications, and operating characteristics are illustrated with tables, charts, graphs, and circuit diagrams. The magnetic amplifiers described have a power output of 0.03 to 325 watts, 6.3 to 230 volts, 0.015 to 1.7 amperes. Photographs are included to show magnetic amplifiers designed for various typical applications.

For your free copy, ask for number B5216, using the card on page 33.

Announcement of their new 1955 catalog has been made by **Alkco Manufacturing Co.**, 4242 Lincoln Ave., Chicago 18, Ill. The catalog contains complete information concerning the Alkco line of **stock and custom lighting fixtures.**

For your free copy, ask for number B5217, using the card on page 33.

A new booklet on **supermarket lighting.** "Better Seeing Builds Better Sales," has been released by **Sylvania Electric Products, Inc.**, 1740 Broadway, New York 19, N. Y. Written by a group of Sylvania lighting engineers with extensive experience in this field, the booklet is a factual treatise covering the economics and mechanics of good store lighting.

Written in non-technical language, the book covers such topics as general store lighting, supplementary and service area lighting, maintenance, wall display and showcase lighting, accent lighting and mass display lighting. The use of fluorescent and incandescent lamps is discussed and also various methods of mounting fixtures.

For your free copy, ask for number B5218, using the card on page 33.

A new 32-page catalog describing the complete line of **White-Rodgers automatic controls for heating, refrigeration, and air conditioning**—has been released by White-Rodgers Electric Co., St. Louis 6, Mo.

The catalog contains complete information regarding room thermostats, space thermostats, relays, pressure and hydraulic-action temperature controls. Included also are all controls for oil and gas fired systems of both warm air and hot water heating.

For your free copy, ask for number B5219, using the card on page 33.

Steber Manufacturing Co., Broadview, Ill., has released a new two-color brochure (Form 1076), which illustrates and describes their new line of **chrome Steberlites** with black mounting flanges.

For your free copy, ask for number B5220, using the card on page 33.

An engineering report on Wakon, a formulation of rigid copolymer vinyl chloride now optional in the Wakefield translucent ceiling, is available from the **F. W. Wakefield Brass Co.**, Vermilion, Ohio.

The report includes details of product highlights, and also the product standards, dimensional data, a table of co-efficients of light utilization, and provisions of the three-year warranty.

For your free copy, ask for number B5221, *using the card on page* 33.

A new bulletin describing G-E's new line of **circuit breaker load centers** for residential and light commercial service entrance installations is available from the **General Electric Company's Trumbull Components Dept.**, Plainville, Conn.

The two-color 12-page publication, designated GEC-1309, contains information on product features and applications of the new load centers, circuit breakers, and accessories, as well as information on merchandising aids available for the use of contractors.

In addition, the bulletin provides data on ratings, specifications, wiring diagrams and dimensions for the load centers.

For your free copy, ask for number B5222, *using the card on page* 33.

A new bulletin (No. S-401-B) describing the **single-phase, oil-filled transformers** of the **Standard Transformer Co.**, Warren, Ohio, is now available. The bulletin gives shipping weights and dimensions, connection diagrams, and NEMA ratings. Components and transformers are illustrated.

Standard Transformer manufactures a complete line of distribution, power, current, potential, askarel-cooled, rural, testing, street lighting, auto, and general purpose dry-type transformers.

For your free copy, ask for number B5223, *using the card on page* 33.

As its name implies, the new manual just published by **Reynolds Metals Co.**, entitled, **"A Guide for the Selection of Electric Conductor Accessories,"** provides information useful for selecting and installing accessories needed with aluminum wires and cables in the construction of overhead electric transmission and distribution lines.

The manual explains that Reynolds, as a matter of policy, does not manufacture conductor accessories, leaving that to the specialists in the field. However, since Reynolds is a major source of electric conductor, it has prepared this manual to supply much-needed information on the wide variety of conductor accessories available.

For your free copy, ask for number B5224, *using the card on page* 33.

Now available from **Sola Electric Co.**, 4633 W. 16th St., Chicago 50, Ill., are most recent specifications on **Sola constant wattage mercury vapor lamp transformers for indoor industrial and commercial use.** Bulletin No. MV-211 is divided into three sections: General Characteristics, Performance, and Specifications.

Section on Performance contains chart, curves, and oscillograms comparing regulated and conventional mercury vapor lamp ballasts. Specifications section contains electrical and mechanical specifications in easy-to-read chart form, connection diagrams, and dimensional diagram with mechanical features.

For your free copy, ask for number B5225, *using the card on page* 33.

A new booklet describing the new **heavy-duty, rigid steel electrical conduit,** Superduct, has just been published by **National Electric Products Corp.**, Gateway Center, Pittsburgh, Pa.

In the booklet, the company has reproduced test data sheets compiled by independent Pittsburgh Testing Laboratories which show how the specially protected conduit stands up under the corrosive attacks of salt spray, sulfuric acid, caustic soda, and exposure to excessive heat as compared with another well-known conduit.

Four-color photographs, showing the firm's new Superduct and the other specially protected conduit illustrate the effects on both after exposure to attacks listed above.

For your free copy, ask for number B5226, *using the card on page* 33.

A complete compilation of all new **RLM Specifications** is now being printed. It covers 46 different types and sizes of incandescent and fluorescent industrial lighting units, now qualified to bear the RLM Label. Advance reservations for copies of this new 1955 RLM Specifications Book are now being accepted by the **RLM Standards Institute**, Suite 818, 326 W. Madison St. Chicago 6, Ill.

For your free copy, ask for number B5227, *using the card on page* 33.

A new 28-page **catalog of buying information on a-c motors** is available from the **General Electric Co.**, Schenectady 5, N. Y.

Designated GEC-1026, the bulletin presents complete buying information on standard a-c fractional and integral horsepower motors in most general use.

For your free copy, ask for number B5228, *using the card on page* 33.

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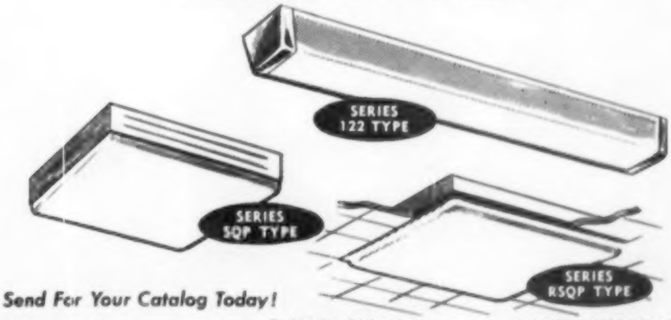
new fluorescent fixtures with Plexiglas diffusers for homes, schools or businesses . . .



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News of the industry

edited for Southern readers

North Carolina AIEE elects new officers

KENNETH T. KNIGHT, Raleigh, was elected chairman of the North Carolina Section of the American Institute of Electrical Engineers at its annual meeting at Winston-Salem, N. C., recently. He succeeds H. W. Oetinger, Charlotte.

Other officers elected are: J. C. Bregar, Winston-Salem, vice-president; and E. W. Winkler, Raleigh, secretary.

E. K. Kraybill, Durham, and Lawrence C. Moore, Charlotte, were named members of the executive committee.

From left to right, Z. B. Greer, Birmingham, Ala., Southeastern executive field engineer for Appleton Electric Co., Chicago; Charles W. Holley, Memphis; Logan VanLeigh, Atlanta; and Howell M. McGaughey, Atlanta, are shown at a recent meeting where they discussed the realignment of Appleton's Southern sales force.

Appleton realigns Southern sales force

ANNOUNCEMENT of the realignment of the Southern sales force of Appleton Electric Co., Chicago, was made recently by Z. B. Greer, Birmingham, Ala., the company's Southeastern executive field engineer.

Charles Holley, formerly with Fischbach & Moore, and before that with Moore-Handley Hardware Co., has joined Appleton and will headquarter in Memphis. He will serve as the firm's resident field engineer for Western Tennessee, Northern Mississippi, and most of the State of Arkansas.

Logan VanLeigh has moved from Chattanooga to Atlanta to assist H. M. McGaughey in the Georgia and Eastern Tennessee territory. Charleston, S. C., and the Tallahassee district in Florida have been recently added to Appleton's Georgia territory.

John Steele, the company's field engineer at Charlotte, N. C., recently relinquished the Southern part of South Carolina, and will work in its place the Danville, Va., area, which was relinquished by the New York district.

William J. Boughton, Jr., will work the State of Alabama, the Southern portion of Mississippi, and Florida West of the Apalachicola River.

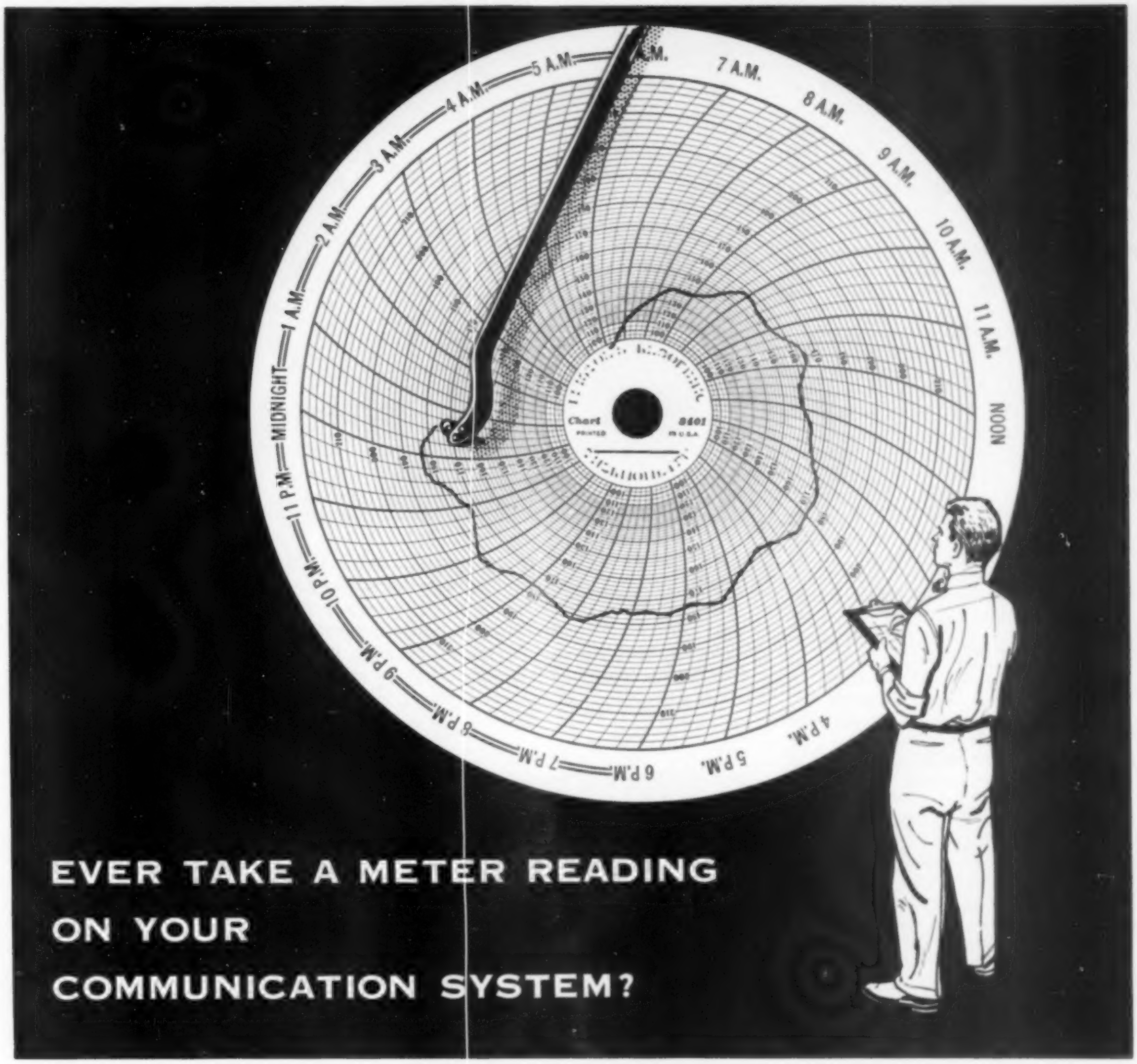
William Glaser has moved from Chicago and will locate in the Tampa area to cover the State of Florida, except the Northern portion covered by the Atlanta district.

PRESIDENTS HONORED — The Southeastern Electrical Representatives Club of Atlanta, Ga., at a recent meeting honored the past presidents of the Club, in addition to recognizing 15 new members. Here, J. T. Cobb, left, present S.E.M.R. president, recognizes Edgar E. Dawes, the Club's first president. The Club is made up of electrical manufacturers' agents and representatives residing in the greater Atlanta area.

REA moves to keep up with atomic developments

REA AND ITS BORROWERS are moving on many fronts to keep up with atomic energy developments.

One group of distribution co-operatives—the Seminole Electric Co-operative, Inc., Madison, Fla.—is undertaking an active role in AEC's Industrial Participation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Program to study feasibility of small central station nuclear power plants.

Two power-type borrowers — one in Iowa and the other in Michigan—are seeking an AEC "access agreement" and have applied for security clearance for some of their personnel.

Four other groups of borrowers —in the West and Southwest— have indicated definite interest to get AEC information although they have not yet asked for clearance.

REA itself, with a small staff of security-cleared technicians, is perfecting a liaison arrangement with AEC for obtaining information affecting the REA program and rural electric systems.

The Seminole project has already received AEC approval. The object of the co-operative's study is to determine if a nuclear power plant can be developed to produce electricity at costs below those current in Florida and to determine the suitability of small plants with a 10,000 kilowatt capacity for use in the systems of member co-operatives. The study will run for one year and will be made at the expense of the co-operative.

Five REA-financed distribution co-operatives are members of Seminole. REA will observe and assist in the Seminole study and report to the REA borrowers on developments.

The applications for "access agreements" have been filed by the Wolverine Electric Co-operative, Inc., of Big Rapids, Mich., a power-type co-operative serving three distribution co-operatives, and the Corn Belt Power Co-operative, Inc., of Humboldt, Iowa, another power-type co-operative serving 14 distribution co-operatives.

Under the "access agreements" with AEC, the co-operatives will be given access to classified cost figures and other information they need to study atomic energy as a source of electric power and to appraise whatever possibilities it may hold for them.

The other groups indicating an interest include: Central Valley Electric Co-operative, Inc., Artesia, N. M.; Jackson Electric Co-operative, Inc., Edna, Texas; Kansas Electric Co-operative, Topeka, Kansas (This is not a borrower but an association representing co-operatives in Kansas); and Colorado Ute Electric Association, Nucla, Colo. (This is a power-type applicant for an REA loan and represents four distribution systems in Southwestern Colorado).

The inquiries from these REA borrowers are in response to an offer made earlier in the winter by Ancher Nelsen, REA Administrator, to help any system desiring to obtain information about the atomic energy as a potential source of power.

The Administrator said that he has been urging farmers to prepare for the possible advent of atomic power in three ways:

"First, we've got to learn enough about the facts so we won't be sold high-cost white elephants. Second, we've got to be ready to act when the right time comes. Third, we've got to keep up with research in our field of rural electrification."

Nelsen said that REA has been working with the AEC for about a year watching closely develop-

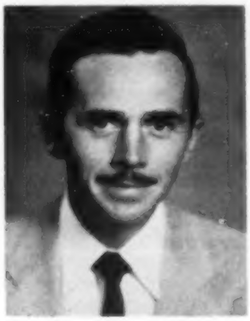
FAN SALES REPS—When national sales representatives for Trade-Wind Motorfans, Inc., Los Angeles, met for a three-day conference in San Diego, Calif., recently, discussion was held on sales plans and product development for 1955. Here Southern territory representatives examine contents of a new sales manual provided for those attending the conference. Left to right, they are Lester Ward and William McCray of the L. R. Ward Co., Dallas; L. R. Cressy of Cressy Sales, New Orleans; and Frank Davis of Southern Agencies, Atlanta.

AUTH AGENT—W. B. Halsted, right, of Auth Electric Co., Inc., Long Island City, N. Y., is shown with Verlyn H. Branham, Jr., during a recent meeting in Atlanta. Following this meeting, Mr. Halsted announced the appointment of Verlyn H. Branham & Son, Atlanta, as Auth sales representatives in the States of Georgia and Alabama, and in the Eastern portion of Tennessee.

ments that might lead to lower cost of power for farmers. He said that REA now has several agency employees, including engineers, working with AEC.

Peabody Brothers name new Louisiana salesman

PEABODY BROTHERS, Southwestern sales representatives for electrical and lighting equipment with offices in Houston and Tulsa, have announced the appointment of William Fulton as their salesman for the State of Louisiana, except Shreveport. The announcement was made by Al D. Peabody, firm partner.



William Fulton

Mr. Fulton will headquarter in New Orleans, and will be under the supervision of George A. Peabody, who is in charge of the South Texas and Louisiana territory for the firm.

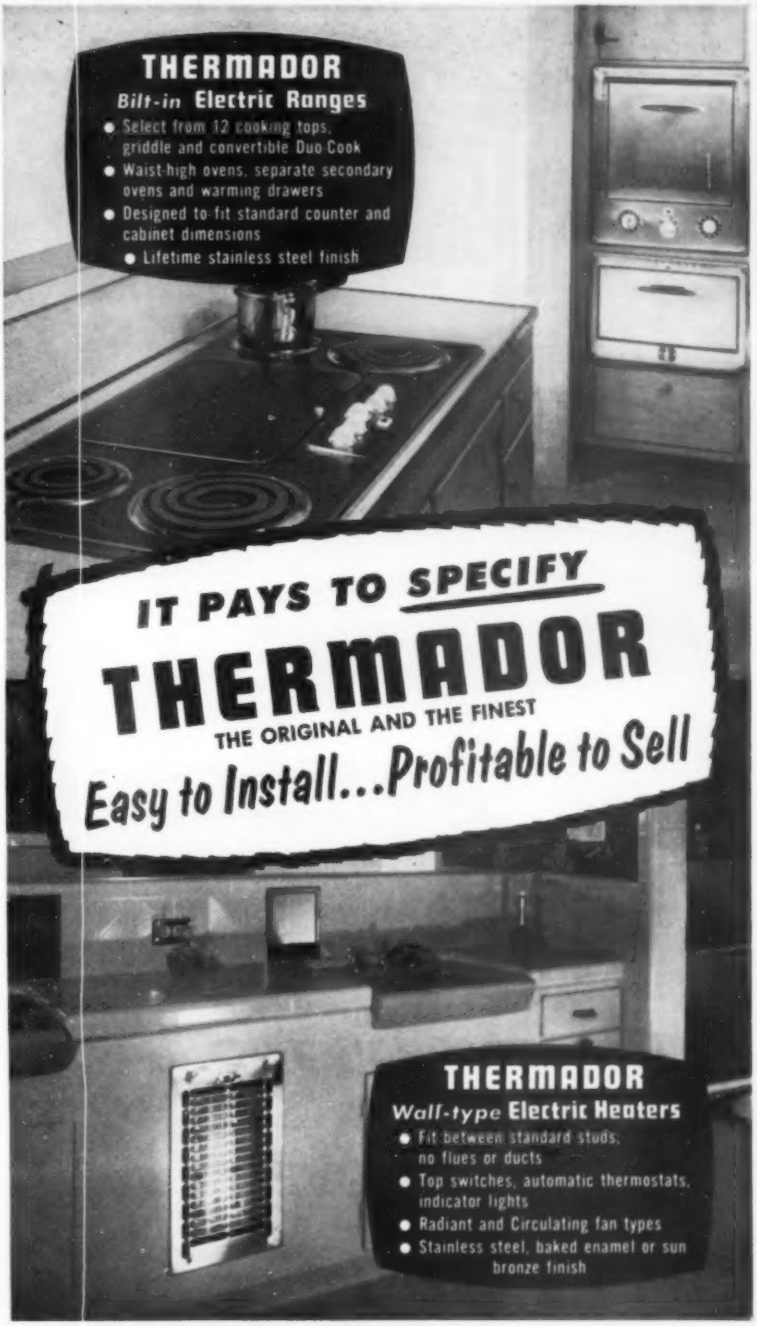
Mr. Fulton was formerly employed by the Minneapolis-Honeywell Regulator Company at their branch in New Orleans as an automatic control layout engineer, and later as branch service manager, and market development salesman.

Alabama utility announces atomic power developments

A NEW NON-PROFIT corporation, Atomic Power Development Associates, Inc., has been formed to carry on the research in which its organizers have been engaged.

Word of this most recent action toward finding peaceful employment for the atom came from L. M. Smith, president of Alabama Power Co., which has been cooperating through Southern Services, Inc., in atomic power research under a contract with the Atomic Energy Commission. The 33 participating companies included 25 investor-owned electrical systems as well as eight manufacturing, engineering and research firms.

Charter for the new corporation



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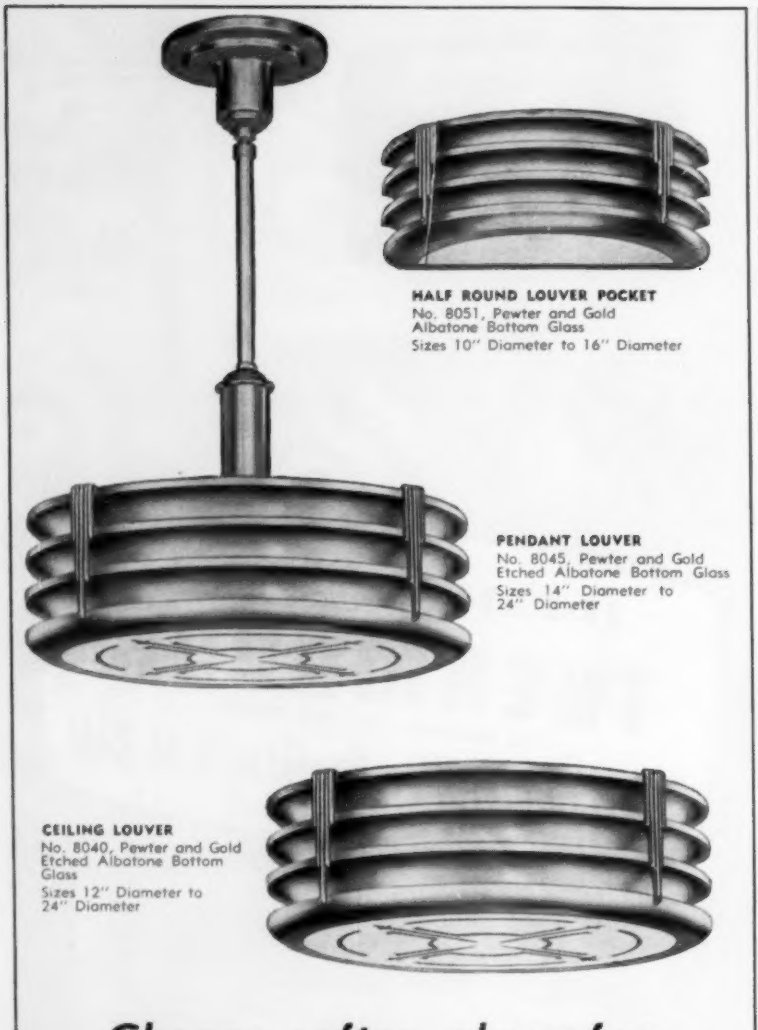

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was granted under the laws of the State of New York, and offices will be maintained in New York City and Detroit, Mr. Smith said.

The first organization meeting was held in New York City recently. Walker L. Cisler, president, Detroit Edison Co., was elected president and Alton P. Donnell, who has been project manager for the past year was appointed general manager.

The group, which grew from a start of two companies in 1950, has been working on the problem of utilizing nuclear heat in the operation of thermal-electric generating plants. This would be accomplished through the use of an atomic power reactor or "nuclear furnace" to produce the steam to drive turbine generators of the type now in use.

The Alabama Power president set forth the purposes of the new corporation as follows:

1. To study the potentialities of an economic production and utilization of atomic energy for the generation of electric power and for other useful purposes;
2. To engage in research, experiments, and development activities and to contract for work to be done by others, looking toward the practicable industrial utilization of atomic energy;
3. To acquire and provide information on industrial and other civilian uses of atomic energy;
4. To advance knowledge and learning to stimulate research and discovery in the utilization of atomic energy for peacetime purposes;
5. To provide methods of education for its members, their employees and others interested in the industrial and commercial applications of atomic energy; and,
6. To maintain and operate such laboratories and other facilities as may from time to time seem desirable.

Miles firm appointed Chromalox sales agent

APPOINTMENT of Harold Miles and Associates as Chromalox sales engineering representatives in Tennessee and in Alabama North of the Tennessee River has been announced by the Edwin L. Wiegand Co., Pittsburgh, Pa.

Mr. Miles' organization will headquarter at 424 Georgia Ave., Chattanooga 2, Tenn.

An electrical engineering graduate of Ohio State University, Mr. Miles has "grown up" in the Chromalox organization and has an impressive electrical heating background that started at the Wiegand plant in Pittsburgh in 1937.

He was appointed sales manager

of industrial heating equipment in 1943, and held that post until 1949, when he joined C. B. Rogers & Associates of Atlanta, Ga., Chromalox representatives in the Southeast.

The new organization will handle the complete Chromalox line of industrial equipment and electric range and water heater units and electric home heating equipment in their assigned territory.

Dates Ahead

Electrical Equipment Committee, EEI, Rice Hotel, Houston, Texas, May 16-17, 1955.

National Association of Electrical Distributors, 47th Annual Convention, Conrad Hilton Hotel, Chicago, Ill., May 22-25, 1955.

District 3, NECA, Annual Meeting, George Washington Hotel, Jacksonville, Fla., June 2-3, 1955.

National Industrial Service Association, 22nd annual convention of the national association of motor repair shops, Hotel Statler, Los Angeles, Calif., June 6-10, 1955.

Edison Electric Institute, Annual Convention, Los Angeles, Calif., June 13-16, 1955.

District 2, NECA, Spring Meeting, French Lick Springs Hotel, French Lick, Ind., June 17-18, 1955.

American Institute of Electrical Engineers, Summer General Meeting, New Ocean House, Swampscott, Mass., June 27-July 1, 1955.

Southeastern Electric Exchange, Personnel Administration Section, Roanoke Hotel, Roanoke, Va., Aug. 11-12, 1955.

Southeastern Electric Exchange, Engineering and Operation Section, Charlotte Hotel, Charlotte, N. C., Sept. 22-23, 1955.

American Institute of Electrical Engineers, Fall General Meeting, Morrison Hotel, Chicago, Ill., Oct. 3-7, 1955.

Southern Section, IAEI, Annual Meeting, Jung Hotel, New Orleans, La., Oct. 3-5, 1955.

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The complete line of Quality Lampholders for
PROJECTOR and REFLECTOR LAMPS

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No. 610. Cast aluminum weather tight with SILICONE RUBBER seal for PAR-38 and R40-150 watt lamp.
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No. 605. Portable cast aluminum SPARLITE with SILICONE RUBBER gasket.
No. 600. Drawn steel, heavy plated portable SPARLITE.
No. 602. Economy portable cast aluminum SPARLITE.
No. 600C. Plated steel with ground spike.
Cast aluminum SPARLITE with SILICONE RUBBER gasket seal with box cover.
Accessories for MULTI SPARLITES
No. 630. Cast aluminum SPARLITE for R40 Mogul lamp.
Cast aluminum junction box and cover.
Cast aluminum thru wall flange with three hole cover.
Cast aluminum Multi Trough with pipe slip fitter.
Pipe slip fitter with junction box and three hole cover.

● Customer satisfaction is sure with this line of lighting equipment by Multi, a name known for quality for over 35 years.

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News about people

W. A. Roberts, president of **Allis-Chalmers Manufacturing Co.**, since February, 1951, died suddenly April 12 following a heart attack. He was 57 years old.

Mr. Roberts began his career with Allis-Chalmers in 1924 as a salesman for the firm's tractor branch in Wichita, Kansas.

In March, 1944, Mr. Roberts became vice-president in charge of the company's tractor division. He was elevated to executive vice-president in charge of that division in 1947. In January, 1948, he became a director, and in March, 1948, a member of the board's executive committee.

Southern States Equipment Corp., Hampton, Ga., recently announced that **Glenn L. McDuffie** has joined its organization in the capacity of district representative.

G. L. McDuffie

Mr. McDuffie came to Southern States from Westinghouse Electric International Co., and has had wide experience in the electrical utility industry.

Clifford H. Keen has been appointed assistant general sales manager of **Hubbard and Co.**, Pittsburgh, Pa., manufacturer of pole line hardware and producer of a diversified line of forged, stamped, and machine products.

Mr. Keen has been with Hubbard in various sales capacities since graduation from Dickinson College, Carlisle, Pa. in 1923. More recently he was in charge of the Eastern and Pittsburgh sales divisions.

Martin R. King has been appointed manager of advertising for **General Electric's Lamp Division**, it was announced recently by **Ralph H. Humbert**, marketing manager for the division's **Large Lamp Department**.

Mr. King succeeds **William H. Robinson, Jr.**, who has held the advertising post for the past 10 years. Mr. Robinson has been made marketing manager of the division's new **Miniature Lamp Department.**

Mr. King was transferred to Nela Park, Cleveland, from G-E's administrative headquarters in New York, N. Y., where for the past year he has been in charge of the company's public relations manpower development program.

M. R. King

J. H. Steele has been named sales manager of **R. E. Uptegraff Co.**, Scottdale, Pa., manufacturer of transformers. He has been a sales engineer for the company since February of 1954.

J. H. Steele

Capacitor application

(*Continued from page* 29)

ondary capacitors can seldom be economically justified unless it can be shown that primary capacitors also would have been a profitable investment. When secondary capacitors are installed in quantity on a system, banks of fixed primary capacitors should be removed or converted to automatically switched banks in order to permit the maximum use.

In order to assess the benefits to

NOW!

for the first time
...anywhere!

Steel Offset Fittings

by

DURO

eliminates bending
saves time and money
simplifies installations

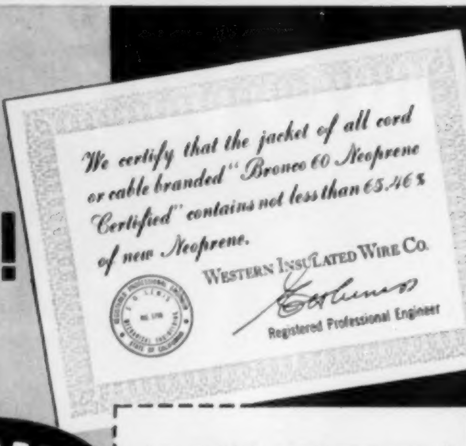
DURO
E.M.T. OFFSET INDENTOR CONNECTOR
E.M.T. OFFSET SET SCREW CONNECTOR
E.M.T. OFFSET COMPRESSION TYPE CONNECTOR

The Fastest Growing Name in Fittings

DURO FITTINGS COMPANY
(MULTI PRODUCTS MANUFACTURING CO.)
2040 SANTA FE AVENUE
LOS ANGELES 21, CALIFORNIA

your extra dividend!

on every box and reel of...



We certify that the jacket of all cord or cable branded "Bronco 60 Neoprene Certified" contains not less than 65.46% of new Neoprene.

WESTERN INSULATED WIRE CO.

Registered Professional Engineer

BRONCO Certified 60

65.46% NEOPRENE!

This certification which appears on every box and reel of Bronco 60 Certified portable cable assures you that the protecting jacket contains *a bonus quantity of Neoprene...65.46%!* More Neoprene gives you greater oil-resistance, longer wear, more flexibility. You *know* what you are getting.

BRONCO 60 CERTIFIED *is sold only through Electrical Wholesale Distributors.*

Manufactured by
WESTERN INSULATED WIRE CO.
Los Angeles 58, California

BE SURE! USE M&W

watertight connectors

with new protection you need!

Now! A good connector with a conical compression ring that pulls up watertight, seals the tapered Neoprene bushing uniformly around the cable. Has extra take-up capacity, too.

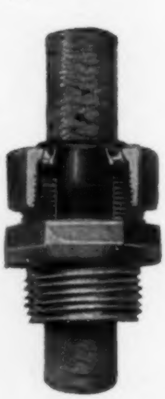
LOW IN COST! HIGH IN PERFORMANCE!

Made in 2-screw or hex-nut types. Fit ¾" to 1¼" hub or knock-out; cable sizes from 10/2 to 2/3. Write for details and new Catalog No. 20-B.

Water-Tight Connectors — Non-Water-Tight Connectors — Service Entrance Kits — Service Entrance Caps, Straps and Sill Plates — BX and Romex Connectors.

Cut-away View

Shows new conical compression ring that seals bushing tight around cable.



M&W Electrical Fittings

The M. & W. ELECTRIC MFG. CO., Inc.
EAST PALESTINE, OHIO

be derived from the use of secondary capacitors, it is necessary that these benefits be clearly understood. They may be listed under many headings, but the useful results are essentially as follows:

1. Increase of peak load thermal capacity.
2. Reduction of load losses.
3. Improvement of secondary voltage.

The value of these benefits depends on the particular system to which the capacitors are applied. For example, increased peak load capacity is of no consequence where system capacity is already adequate, but it becomes of primary importance when overloaded conditions have matured or are anticipated. Reduction of load losses would appear to always have some value but this is never the predominating benefit. In some cases the improvement of secondary voltage may be of greater importance than increased thermal capacity, and in others the benefit may be altogether discounted because of the difficulty in placing a value on it.

It is useful to consider the relative values that may be attached to these benefits under conditions favorable to each of them. Figure 5 shows such a comparison. This chart is not intended to represent any typical condition, but emphasizes the economic possibilities. The differing degree of importance that may be considered in specific cases is brought out by Figure 6. This table summarizes the results of three different methods of analysis used by power company engineers. The comparison between A and C is of special interest, the first justifying the capacitors entirely by increased revenue resulting from improved voltage conditions, while the second shows a profitable return based only on the increased system capacity.

Southwest IES meeting

(Continued from page 23)

in which he advanced the contention that man's first use of fire was for the purpose of producing light.

From that point he went through the period in which electric light was first produced, in 1808, then through the struggles of Edison. He delivered what seemed to be a complete, condensed history of lighting, before taking up the various types of light sources and in this review it seemed that he did

BE *Sure* with CORNISH

CORDS

GLUTTONS for PUNISHMENT

18/2 SV ACTUAL SIZE
16/2 SJ ACTUAL SIZE
14/2 S ACTUAL SIZE
CORNISH WIRE COMPANY INC.

Sturdy rubber insulated cords in types S, SJ and SV, with a long and honorable record of faithful service. Also COROPRENE and SUPER-COROPRENE oil-resistant Neoprene jacketed cords for more exacting service.

Let this attractive lithographed metal spool bring you fast and profitable "footage" sales . . . a nationally identified symbol of Quality and Performance

CORNISH WIRE COMPANY, INC.
50 Church Street New York 7, N. Y.

L. MORRIS LANDERS CO., 624 Spring St. N.W., Atlanta, Ga.

---

for the LONG PULL use

Y-ER EAS
Wire Pulling Lubricant

Only Y-ER EAS has all these features

- Creamy, non-corrosive lubricant. Never greasy or messy.
- Prevents sticking or setting. Specially helpful on saddles and turns.
- Does not run back on cables.
- Never harmful to hands or clothing.
- Permanently non-harmful to cables or conduit.

Write for descriptive booklet

GIVES THE SLIP TO—
Lead, Rubber, Braid or Synthetic Covered Cables

Improved Y-ER EAS tested and approved by the Underwriters' Laboratories, Inc.

AT ALL LEADING ELECTRICAL SUPPLY HOUSES

ELECTRO COMPOUND CO.
4145H W. 150th Street • Cleveland 11, Ohio

ELECTRICAL CONTRACTORS!

Here are . . . NEW PROFITS FOR YOU!

Get into the ELECTRIC HEATING BUSINESS

Electrend

ELECTRIC CIRCULATING AIR HEATING SYSTEMS

Builders and homebuyers alike are showing increased interest in electric heat . . . and now is the time to establish your organization as a leader in the field! The exclusive Electrend principle economically reuses warm air that has risen to the ceiling. This is accomplished by pulling in the warm air, reheating and returning to the room at floor level where needed. Electrend is easily installed and provides the homeowner with comfortable heat at a modest cost.

CHECK THESE IMPORTANT ELECTREND FEATURES:

- Exclusive principle—pulls warm air from ceiling, reheats and circulates into room at floor level.
- Simple, low-cost installation. No special skills required.
- Completely automatic. Thermostatically controlled in each room.
- Outstanding safety. UL approved.
- Long years of satisfactory performance.
- 100% clean. Customers appreciate absence of soot, smoke, ashes and fuel problems.

Write today — get complete details on Electrend and name of distributor in your area. Profitable southern territories open to qualified electrical distributors.

MEMBER INDOOR COMFORT

NEMA

Electrend PRODUCTS INCORPORATED
18 State Street • St. Joseph, Michigan

Revere ELECTRIC MFG. CO. CHICAGO, ILL. Poles

HINGED and RIGID TYPES

WIDE CHOICE • RIGHT CHOICE
QUICK DELIVERIES

FROM STOCK
A
B
C
D
E

A
Combination air, water and light Pole No. 204-1 with Revere No. 30802 Flood.

B
Single arm air, water and light Pole with Revere No. 3068 Mercury Vapor Luminaire.

C
Latest Double Arm Tapered Steel Pole with Cluster top floods and two Mercury Vapor No. 3068 Luminaires.

D
New Revere Island Lighter with Mercury Vapor Luminaire. Lower section of Pole houses transformer and accommodates piping for air and water service.

E
No. 199-E24 Revere Hinged Pole with three No. 3802 Eliptor Floodlights. Great efficiency is possible with this arrangement because floodlights can be cleaned any time without climbing.

REVERE ELECTRIC MANUFACTURING CO.
6005 Broadway Chicago 40, Ill.
Available in Canada thru Curtis Lighting, Ltd., Leaside, Ont.

THE COMPLETE LINE OF FLOODLIGHTS AND POLES FOR SERVICE STATION • SPORTS • AIRPORT • STREET • OUTDOOR THEATRE • MARINE AND INDUSTRIAL LIGHTING

FLOODLIGHTING IS AN ART WITH Revere

CLOSED FLOODS
From 150 to 5000 Watts

FAMOUS ELIPTOR
300 to 1500 Watt

ENDOVAL & STARLUX MERCURY LUMINAIRES

HINGED POLES CREATED BY REVERE

HINGED AND RIGID FLOODLIGHT POLES

AIR-FLO MODEL 610

AUTOMATIC CEILING SHUTTER

Outstanding Features of Model 610 Automatic Ceiling Shutter

- Neutral Aluminum Color Blends With Any Decoration and Color Scheme
- Flush Appearance
- One Continuous Panel Regardless of Width
- Maximum Free Air Opening
- Fusible Links Release Spring Action in Case of Fire
- Full Opening Feature Minimizes Fan Air Delivery Loss

*Southeastern Factory Warehouse
177 Harris St., N. W., Atlanta, Ga.

MANUFACTURED BY AIR CONDITIONING PRODUCTS COMPANY
2340 W. LAFAYETTE • DETROIT, MICHIGAN

not overlook a single item in either type or category. It was an exhaustive report, with an abundance of illustrations including, for a humorous break, a color slide showing all the beauties who competed in the Atlantic City "Miss America" contest.

At one point, Mr. Beggs made effective use of lighting statistics in this manner:

"Modern life, especially in America, is inextricably tied to electric light. From birth through his entire life, man depends on lights for health, wealth and enjoyment to an extent beyond general understanding.

Statistics of use

"We are today using 2,500 thousand billion lumen hours of man-made light per year. That's over 15,000,000 lumen hours for each of the 150,000,000 Americans. That's equal to the light of two, 40-watt fluorescent lamps or two 150-watt filament lamps, burning 12 hours a day, 365 days a year for every man, woman and child in the United States.

"We use three times the amount of light we used ten years ago. America, with five per cent of the population, produces 45 per cent of the world's products. Without adequate, dependable, all - year, round-the-clock electric lighting, this would be impossible."

In conclusion, Mr. Beggs commented:

"We are in the hands of those who follow us. Lighting has come far from the day of the burning fagot torch. Youth must and will carry on. May we in lighting give them inspiration and help make America the light of the world."

Contractor session

William G. Darley, San Antonio engineer, presided as chairman at the second luncheon meeting, this one including NECA and independent electrical contractors. And in his second formal address of the conference, President Jones expressed the belief that the day has come "when we of the lighting industry must determine the position we have reached and say to ourselves, 'Where do we go from here?' " He added:

"I believe we have reached the point where we must first realize that light is a medium of scientific expression. An expression that is an important factor in physical health, because seeing requires physical energy and is allied to

DIXISTEEL
TRADE MARK
HOT-DIP GALVANIZED
GROUND RODS

5/8" x 8'

The finishing touch
to a first-class job

THE MARK of a good electrical job well done is a DIXISTEEL Galvanized Ground Rod.

Sharp-pointed for easy driving . . . hot-dip galvanized for positive protection against rust. 5/8" x 8' and other popular sizes carried in stock.

Write or telephone for prices.

FABRICATING DIVISION
Atlantic Steel Company
MAKERS OF DIXISTEEL SINCE 1901
ATLANTA, GEORGIA • EMERSON 3441

Elgo Ventilating Specialties

Can You Equal This Automatic Shutter?

Unusually sensitive to air currents—yet the shutters fit with a snugness never before achieved in an automatic shutter, and are rattle-proof. In addition, they have a swivel joint that does not wear loose, and is good for the life of the shutter. Sizes from 12" to 72"—also rectangular.

Write for circular and prices

"Echo" Automatic Ceiling Shutters

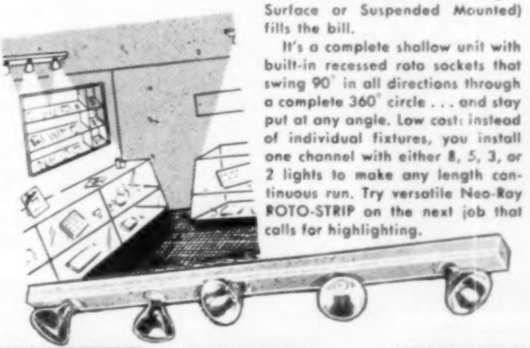
Used for attic ventilation. Installed in attic floor at the base of a penthouse, the louvers being operated by the suction of the fan.

Free CATALOG
ELGO SHUTTER & MFG. CO.
2738 W. WARREN DETROIT 8, MICH.

IF IT CALLS FOR HIGHLIGHTING...
call for NEO-RAY ROTO-STRIP
Pat. Pend.

Merchandise on counters . . . shelves . . . floor and window displays — yes wherever accent lighting fits in — ROTO-STRIP (Recessed, Angle, Surface or Suspended Mounted) fills the bill.

It's a complete shallow unit with built-in recessed roto sockets that swing 90° in all directions through a complete 360° circle . . . and stay put at any angle. Low cost: instead of individual fixtures, you install one channel with either 8, 5, 3, or 2 lights to make any length continuous run. Try versatile Neo-Ray ROTO-STRIP on the next job that calls for highlighting.



Kansas • Missouri
Bob Anderson Company
4908 West 72nd St.
Kansas City 15, Mo.

Arkansas • Louisiana
Mississippi • West Tenn.
Pierre E. Bagur, Jr. & Co.
International Trade Mart
New Orleans 12, La.

Texas • Oklahoma
Walter J. Huemmer
Dallas Transfer &
Terminal Warehouse Bldg.
Dallas 2, Texas

Kentucky
Swan Sales Company
1105 Chestnut St.
Ashland, Ohio

Alabama • Florida
Georgia
N. Carolina
S. Carolina
Virginia
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Bona Allen Bldg.
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Mfrd. by: NEO-RAY PRODUCTS, INC., 315 E. 22nd St., New York 10, N. Y.

Cordomatic

AUTOMATICALLY CONTROLLED

DROP
LIGHT
REELS

Cordomatic
800
Reg. U.S. Pat. Off.

13.95
20' Length
30' and 40' Lengths
Slightly Higher Prices

A rugged and dependable piece of equipment that gives you light where you want it . . . when you want it.

★ Crack-proof phenolic pistol grip handle includes the time proven LEVOLIER toggle-action switch and socket.

★ New type heavy duty, all steel, all chrome reflector with swing-open guard.

★ Heavy gauge steel casing . . . smartly styled with a strikingly new textured finish . . . grease and oil resistant and set off by gleaming chrome trim.

★ Underwriters' approved SJ Neoprene cord features a kink proof, moulded-into-core jacket construction . . . oil and water resistant.

★ Fool-proof gravity action locking mechanism has nothing to break or jam.

★ The UNDERWRITERS' LABORATORIES INC. seal on CORDOMATIC DROP LIGHT REELS is your assurance of safety and dependability.

Cordomatic
DIVISION OF THE
VACUUM CLEANER
CORP. OF AMERICA
1724 INDIANA AVE., PHILA. 32, PENNA.

Latrobe PRODUCTS
FLOOR BOXES ★ WIRING SPECIALTIES

Easy To Install

There are no excess screws, wires or complicated parts in "Latrobe" Floor Boxes and Wiring Specialties. Their design and mechanism is simple, sure and compact.

That is why "Latrobe" Products are so quick and easy to install — so efficient in service.

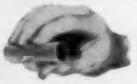
Floor Boxes • Cover Plates • Pipe or Conduit Hangers • Gang Boxes • Nozzles • Fish Wire • Cable Supports • Junction Boxes • Insulator Supports • Staples and Cable Clips

Represented in the South by

CARY CHAPMAN & COMPANY
702 Whitehall St., S. W., Atlanta, Ga.
213 S. Front St., New Orleans 12, La.
445 English St., Greensboro, N. C.

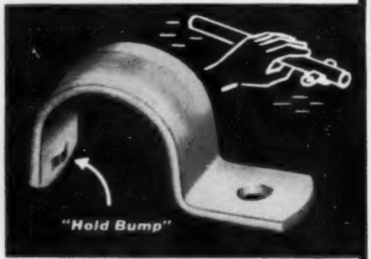
F. P. WALTER COMPANY
4030 Chouteau Ave., St. Louis 10, Mo.

FULLMAN MANUFACTURING CO.
LATROBE . . . PENNSYLVANIA

BLACKHAWK INDUSTRIES SNAP STRAP
the original snap-on clamp
SNAPS TIGHTER,  **HOLDS ITS GRIP**
easier to sell because it's easier to use

WHY it's better—The B-I SNAP STRAP has the "hold bump" at the open end of the bracket—really grips—resists slips like an alligator wrench! Ribbed bracket adds to the snap, provides rigid contact support of the conduit!

SPEEDS WORK . . . MORE JOBS, MORE PROFITS—Faster installations mean more profit for installers and their suppliers. The SNAP STRAP *means* faster installations . . . eliminates time-wasting fumbling, dropping, annoyance—all the *temper* is in the SNAP STRAP. Made of heavy gauge steel, zinc plated after fabrication. Wide range of sizes for rigid and thin-wall conduit.



specify B-I when you buy

CONTACT YOUR NEAREST REPRESENTATIVE—
Griffin & Griffin, Box 7374, Station C,
931 W. Peachtree St. N. E., Atlanta, Ga.
Kenneth H. Hill, P. O. Box 217, Mt. Dora, Florida
Lamps, Inc., 170 Express St., Dallas 2, Texas
Onarecker-Roberts Co., 2518 Times Blvd.,
Houston 5, Texas
S. T. Schoolar & Co., 2616 N. Davidson St.,
Charlotte, N. C.

BLACKHAWK INDUSTRIES
DUBUQUE, IOWA

nutrition, digestion, nerves and other bodily functions. Mental well being because of the psychological effect. Material welfare because of the part light plays in the effectiveness and efficiency of methods, whatever they may be, in living and making a living.

"Light is an atmosphere created by scientific methods to produce a desirable effect upon occupants.

"In effect, the electrical industry has in its hands a dynamic force, a terrific and tremendous tool, which can serve civilization with a full measure of effectiveness."

Luminous panels

Chairman for the final technical session was Ruben K. Lothrop, of the Southwestern Gas and Electric Co., who introduced Benjamin S. Benson, chief illuminating engineer of the Benjamin Electric Manufacturing Co.

With the subject, "Luminous Panel Lighting," Mr. Benson said that buildings equipped with skylights had luminous panel lighting, but by comparison the main difference was that the panels used daylight and leaked when it rained. He said his discussion would include louvered systems since there is much in common between louvers and luminous panels.

Using slides and colored lights, he proceeded with a painstaking discussion, devoting much time to treatment of cavities above the luminous panels. Most of his comment was both technical and specific.

"In designing a luminous panel installation, there are few restrictions as to the shape in which it can be made. In offices, drafting rooms, classrooms and other areas in which close visual tasks are performed for long periods of time, it is usually advisable to run the system from wall-to-wall. The reason for this is to reduce the brightness contrast offered by the panels viewed against a relatively unlighted furred out ceiling," Mr. Benson said.

In closing, he laid emphasis on the possibility of using colored lights above both louvers and panels, demonstrating as he explained.

"By using either incandescent or fluorescent lamps, in color, on dimming circuits, a host of beautiful color combinations can be worked out. Since the panels are basically a light-diffusing device, the entire system takes on a wash or color with contrasting colored bands. The louvers, on the other hand, provide a series of cut-offs that can assume a multi-colored texture that suggests many applications.

"Both the panels and the louvers offer many interesting applications. Such systems have their advantages and limitations, but as long as we recognize them, we can apply them the right way."

Lighting job contest

Traditionally, the concluding feature of the program was "My Most Interesting Lighting Job." In this, four contestants competed for three cash prizes — $25, $15 and $10 — with the first place winner to make his presentation at the Cleveland convetion in competition for a $100 prize.

The four contestants were not identified, either by name or business connection, as they appeared before the San Antonio conference, were not allowed to use brand names in their presentation and were permitted to identify their job by character only, such as warehouse.

They appeared in this order, it was revealed after identifications were made: (1) Kurt Grevelius, Benjamin Electric Manufacturing Co., Houston, on lighting a warehouse; (2) T. L. Moore, Fishback and Moore, electrical contractors of Dallas, on lighting a residence; (3) Floyd A. Covington, Jr., Floyd A. Covington Co., Consulting Engineers, on lighting a San Antonio art gallery; and (4) L. T. Anderson, Texas Electric Service Co., Fort Worth, on lighting a Fort Worth florist's store.

Covington, with his art gallery job, won first prize, Moore, with the residence job won second, and the judges announced a tie between Grevelius and Anderson for third prize.

Chandeliers build traffic

(*Continued from page* 25)

word-of-mouth advertising for the entire business, according to the owners.

Selling chandeliers

Good demonstrations and informative sales discussions are strong points in selling crystal chandeliers, according to A. J. Hurley.

"Product knowledge helps sell expensive crystal chandeliers," he observed. "The customer can tell the difference between lower quality, domestic pieces and imported chandeliers if he is shown properly. He can see that a lower-priced chandelier looks like a coke bottle in comparison with an imported one. The deep cutting, the bright luster, and the leading of the imported chandeliers are features we point out to these buyers."

"It is necessary to keep crystal chandeliers constantly clean and gleaming," he added. "The beauty and lustrous quality of these chandeliers can be emphasized only if they are clean and polished."

Chandeliers are displayed both in the overhead lighting fixture and in the window. One of each style is also kept in the stockroom so they are easily accessible in cases where the customers want to inspect them closely.

Recessed lighting fixtures and adjustable units enjoy a wide acceptance among customers of the Missouri firm. From eight to ten kinds of adjustable fixtures, rang-

PLYMOUTH PLASTIC Electrical Tape
PLYMOUTH RUBBER COMPANY INC.
CANTON, MASS.
66 ft Roll 3/4 Wide
UL
tougher
more protection
faster
practical
economical
neater

6 POWERFUL REASONS WHY THOUSANDS ARE SWITCHING TO...

Plymouth PLASTIC *Electrical* TAPE

Sold Only Through Recognized Wholesalers

PLYMOUTH RUBBER COMPANY, INC.
Manufacturers of SLIPKNOT — The World's Largest Selling Friction Tape
Canton, Mass.

The Magazine for Southern Electrical Men Is

ELECTRICAL SOUTH

◆ ◆ ◆

MAKE USE of our READER SERVICE

The editorial and business staff of **Electrical South** is eager to serve you. One way in which we can help you is to make it easy for you to draw upon the wealth of technical and promotional material available from manufacturers.

In the accompanying pages are the descriptions of scores of useful catalogs, application information booklets, and technical publications. These are available without charge.

Check over the list of publications available, circle the numbers of the ones you need, and mail the coupon to us with your name, title, company and address plainly written. We will tell each manufacturer to send directly to you the information you want.

MADE BETTER TO LAST LONGER!

ASK FOR QUALITY . . . ASK FOR

AMERICAN *Bonded* ARMORED CABLE

Thousands of installations from coast-to-coast have proved the flexibility, durability and dependability of American BONDED Armored Cable — the cable that's quality-made to last longer. Specify AMERICAN Bonded. It's the best there is.

AMERICAN METAL MOULDING CO.

146 Coit St. Irvington 11, New Jersey

Atlanta Warehouse
C. C. MYRICK
516 Elm N. W.
Atlanta, Georgia

Dallas Warehouse
PEABODY BROTHERS
3015 Taylor Street
Dallas, Texas

ing from $17.95 to $45, are kept in stock. Brass adjustable fixtures, used in dining rooms and dinettes, are favorites of the firm's clientele.

"The fact that adjustable units may be raised and lowered, coupled with the fact that because these units usually hang lower they don't accent unattractive and faulty spots in ceilings, are the big factors that help move these fixtures," pointed out A. J. Hurley.

The firm also enjoys a substantial demand for recessed lighting fixtures in use in bathrooms, kitchens and halls. Both the fluorescent and incandescent recessed units are stocked in a variety of sizes and types. Incandescent recessed fixtures sell best, the Hurleys stated.

Value of recessed units

"The fact that we are able to provide skilled installation work on recessed lighting fixtures gives us an edge on the competition in bidding for this business," A. J. Hurley observed. "These installations are usually placed flush with walls and ceilings and require cutting channel and other details. Recessed lighting doesn't hang in people's faces and does an effective illuminating job without showing up defects in walls and ceilings and these features make it a popular choice with a good percentage of our customers."

A complete array of outdoor fixtures, including bracket lighting, etc., used for porches, patios and yards, also brings in scads of buyers to Queen City Electric.

Placed for easy customer inspection is an eight-foot self-service, open-type, display fixture at the rear of the store where customers may inspect various types of outdoor fixtures free from interruption by other store traffic. It is a heavy traffic hub.

Self-service counter

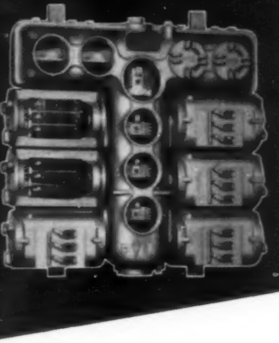
Built with a series of small compartments so the fixtures may be shown off as individual pieces, this display fixture contains units for kitchen, bathroom, porch and yard. Space in a lower section of the display is utilized for three-foot fluorescent strip lighting units which are in heavy demand for use in bathrooms.

"Copper and black wrought iron lighting fixtures are extremely popular with shoppers seeking outdoor lighting equipment," Mr. Hurley said. "Our volume in fixtures for outdoor use climbed 20 per cent after we installed this display,

NEW
DESIGN FEATURES
AND ADVANTAGES

PYLE®
EPB SERIES

EXPLOSION-PROOF
CIRCUIT BREAKER PANELBOARDS



- Quicker ACCESSIBILITY
- Easier MAINTENANCE
- Complete VISIBILITY
- Rugged CONSTRUCTION
- Light WEIGHT

Here is a new departure in cast aluminum circuit breaker panelboard design for hazardous locations. They are explosion-proof . . . dust-tight . . . weather-resistant. Triple sectioned joints in housing bodies provide quick access to and complete visibility of circuit breakers and factory sealed wiring. This means easier maintenance. Available for all wiring systems in 2 to 24 branch circuit types.

Literature Furnished on Request

Sold Nationally Through Authorized Distributors

SINCE 1897

THE PYLE NATIONAL COMPANY
WHERE QUALITY IS TRADITIONAL
1354 N. Kostner Avenue • Chicago 51, Illinois

which puts the merchandise out where people may see it."

"Priced from $3 to $20," he added, "wrought iron fixtures are especially useful on porches and for sidelighting breezeways."

Storewide sales

The practice of holding two storewide sales every year, one in January, the other in July, exerts a revitalizing effect on business at Queen City Electric. Pushed vigorously in a series of good-size newspaper display advertisements, and announced in a big quarter-page layout, these three-day promotions include a flat, across the board, 20 per cent discount on every article in stock. Usually one hundred items are listed in ads, including a representative listing of items from each department.

"These twin sales give us the opportunity to clear out old stock," says A. J. Hurley, "and pave the way for fresh, new, up-to-date merchandise. The bi-annual sale program has had a good influence on our light fixture merchandising program. Not only do they allow us to sell out last year's models and re-stock the inventory with the newest type fixtures on the market, but the attractive discounts offered on these occasions lure many people to the store who might not otherwise be exposed to our lighting fixture department."

Distribution substations

(*Continued from page* 32)

comparing various types, it will be assumed that the kva ratings of the various sizes are selected so that they will serve the same load as the radial substation with which they are compared.

For example, assume that a radial substation of 5000 kva will adequately serve a given load. With a primary network distribution system, adjacent substations must pick up extra load in the event of an outage on one substation. Assuming that the load would be shared by four substations surrounding the one with the outage, addition of fans to a 5000 kva substation would serve the load. Thus the equivalent primary network substation will be rated 5000/6250 kva.

Similarly, a double duplex substation to serve the same load as the 5000 kva radial would contain two 3750-kva transformers. This assumes a moderate overload on one transformer when it is serving the entire substation load dur-

GUARANTEED WIRING DEVICES
F

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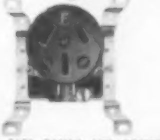

No. 3651 RANGE AND POWER RECEPTACLE, FLUSH MOUNTING. Heavy Bakelite with Patented Swing-away Terminals that prevent dropping or losing of parts. Allows easy one-hand wiring. Polarized for Range and Power Cords. Designed for 4" or 4 11/16" square box. 50 Amps. – 250 V.

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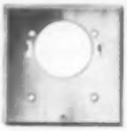

No. 3601-SSBG STEEL RANGE RECEPTACLE PLATE, SPRAYED BRASS FINISH. Grounded.

No. 3650 RANGE AND POWER RECEPTACLE, SURFACE MOUNTING. Heavy Bakelite with Patented Swing-away Terminals that prevent dropping or losing parts. Allows easy one-hand wiring. Polarized for Range and Power Cords. Heavy steel back plate has knockouts for ¾", 1", 1¼" conduit. Has built-in cable clamp for back or bottom wiring. Complete with mounting screws. 50 Amps. – 250 V.

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ing an outage of the other.

Table III summarizes the transformer ratings which are assumed to be equivalent, together with the feeder positions that are assumed for various cost comparisons.

Lawn sprinkling

(*Continued from page* 19)

exceeds the cost of the sprinkling system by several multiples."

So far, this offshoot of Ward's wiring business has been extended to embrace not only homes, but golf clubs, schools and commercial buildings.

Planning value

Mr. Ward values this work not only for its ability to "take up slack," but because he can see ahead to the time when some of his wiring jobs are scheduled to finish up, and the sprinkling angle can be planned so the jobs can be fitted in at the opportune times. The moment electrical work tapers off, Jim begins an advertising spree to attract the watering business.

"Lawn watering systems is far from an overworked field," he says, "and you make a staunch friend if you give a customer a trouble-free installation that will keep his grass green.

"We always have in our shop helpers who have worked with pipe but whom we couldn't entrust with a wiring job on their own. We lay out the job for these fellows and they turn in a good sprinkling installation."

Ward emphasizes that even a

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All signs are fired ceramic colors — unconditionally guaranteed. *Units are Underwriters Laboratories, Inc., approved, and comply with National Electrical Code.*

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Sta-Brite Fluorescent Mfg. Co., P. O. Box 6352, Miami, Florida has added a complete line of contemporary lighting fixtures, Hi Hats, Bullets, recessed, etc. in addition to their extensive line of Fluorescent and Slimline Fixtures. Catalog on request.

customer with a postage-stamp sized lawn may provide a husky wiring job, since sometimes such folks value their landscaping far more than the home they live in. It is not at all unusual for Ward to land a sizeable electrical contract from a customer who wants a king-size sprinkling job on his lawn.

Besides, there isn't the keen competition and bidding for the sprinkling dollar that exists for the electrical peso.

Today's contractor

(*Continued from page 26*)

plan your salvation. You are advised to start planning it now. Your planning, however, must include continuous participation in adult education, and it must include progressive labor policies. Now comes the moment for me to expose my neck. You may think me absurd enough to derive real pleasure from chopping it off. You may have long ago thought of a far better solution.

At any rate, I will not challenge you to prove me wrong, even if I am confident in my belief. But I don't believe that we have the time to waste in attempting to

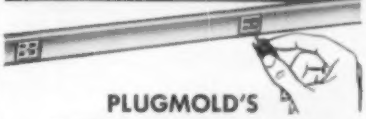
Chicago Contractor selects Plugmold for 2,250 low cost homes

Electrical Contractor
C. W. ABRELL* says:

"To date we have completed the wiring in the first 130 houses of the Markham project. Wiremold's new product, Snapicoil, installs easily and our men like working with it.

Using Plugmold wiring we can give the customer a high quality job which in turn qualifies us for a better profit."

**President*
Edward P. Allison Co., Inc.
Chicago, Illinois

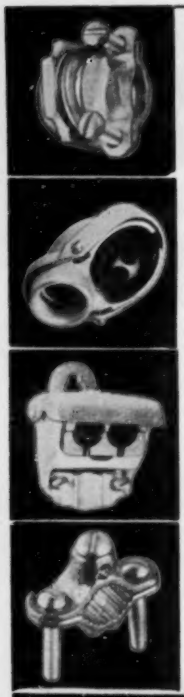


PLUGMOLD'S
More-for-the-Money Value
HELPS SELL HOMES!

Builder Melvin B. Fisher finds Plugmold is "a plus value which can, and often does mean a sale" in his new Markham, Illinois project, where it is being used to provide duplex electrical outlets every 5 feet in every room of the 2,250 homes. The electrical contractor selected Plugmold for these six-room $11,990 homes because it greatly simplifies installation and provides twice the usual number of outlets.

Our Engineering Department will gladly help you with specifications for Plugmold wiring. For more information, write to Dept. L5.

THE WIREMOLD COMPANY
Hartford 10, Connecticut



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Covington, Kentucky
WRITE FOR FREE CATALOG

"prove" our cherished beliefs by outmoded debates. The time has come, instead, when we must search for a way, and more power to the one who can find a better way. Instead of a challenge, I will say simply that if you have a better plan, come forward with it. In the meantime, here are a few steps in the right direction:

Plan work week

An expert can do more alone in one day than two blunderers can do together groping in the dark in two days. Why not, then, develop experts? Out of the present five-day week, use four days for production and one day for the education and training of a staff of experts to man your firm. Weed out the incompetents. As demands on knowledge increase, the demands on time will decrease. Plan eventually for reducing the work time and increasing the study time until the two-day work week is a reality.

Laugh if you must; but the two-day work week is coming. The question is whether you will be able to demand from your men an extra day or two for study which will be so vital to both you and them. Or would you prefer this? When your phone rings and the man on the other end requests an installation of isotopic measuring equipment, spectrographic gauging instruments, X-ray inspection devices, and a good many other things not yet thought of, would you prefer saying, "No, I can't handle that, but I've got the fastest knob-buster in the state"? Someday your phone will ring. How will you answer it?

Underwater cable

(*Continued from page* 17)

at the point of crossing, is 4660 feet wide. Yet in the two manholes are 20,000 feet of cable which can —if necessary—be pulled into the Cayo de Oso.

Just as novel as the way the cable was sunk is the way it was stretched across the treacherous bay.

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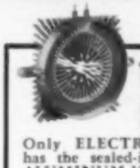

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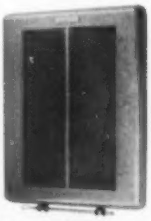

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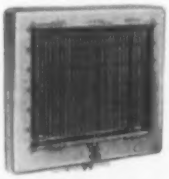

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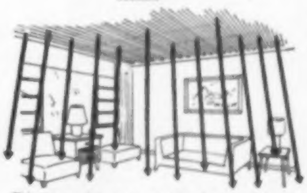

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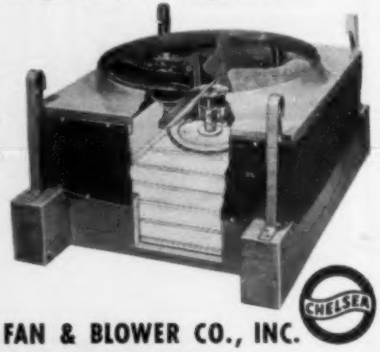

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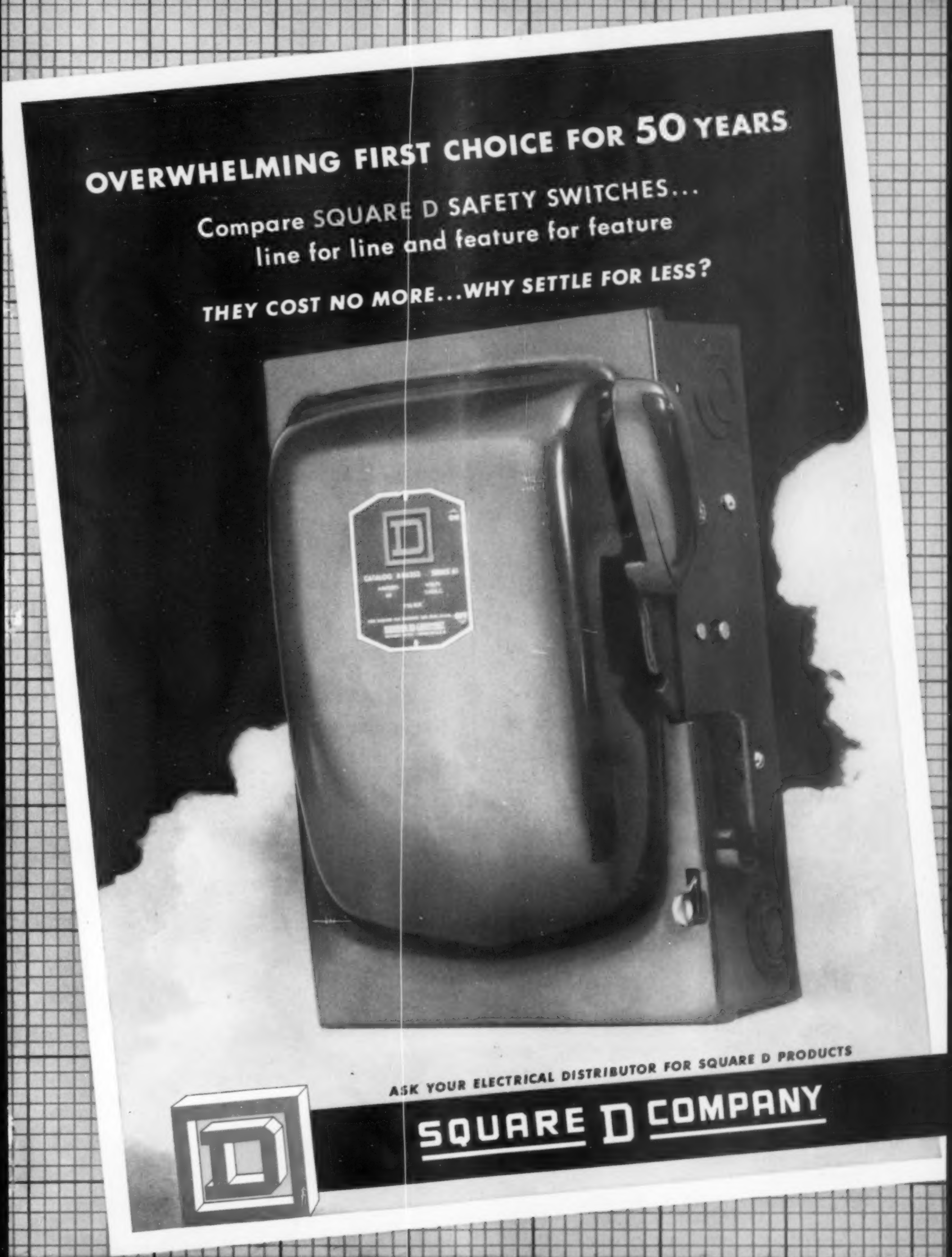

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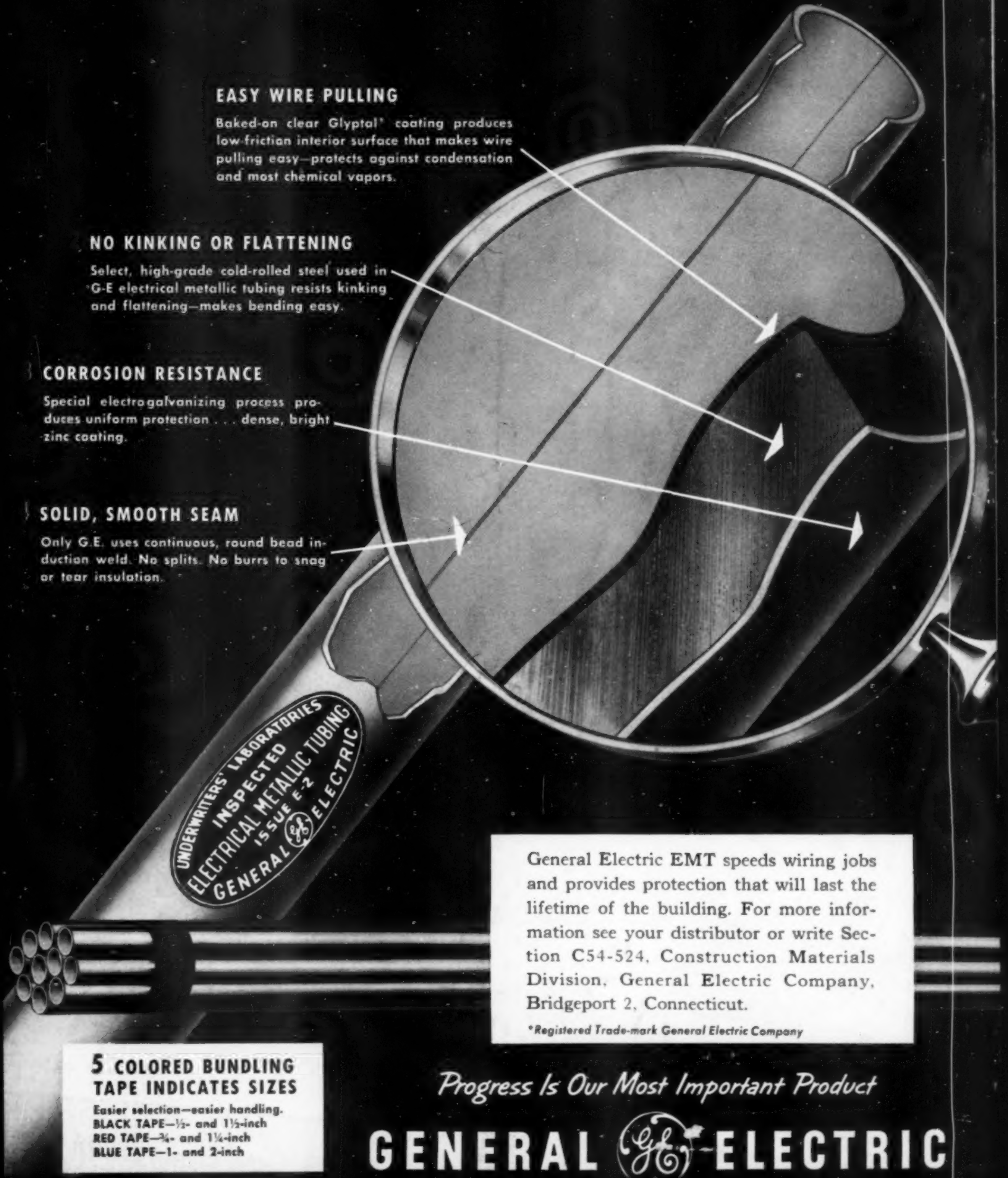

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